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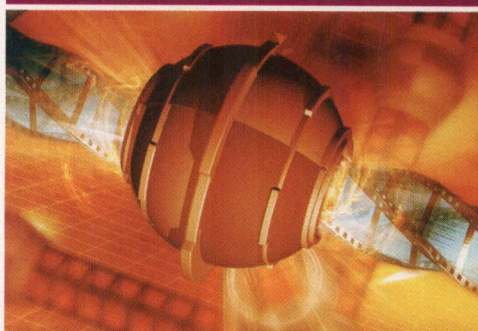
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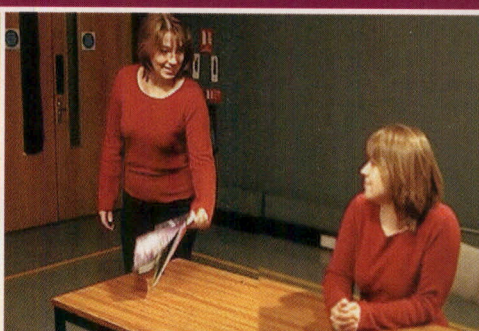
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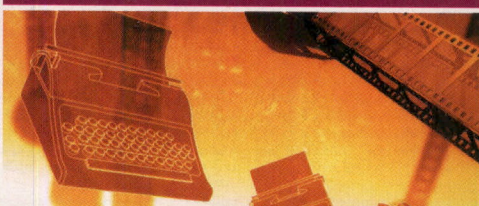
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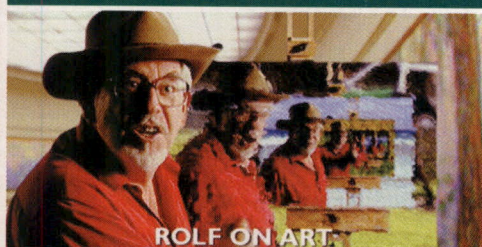
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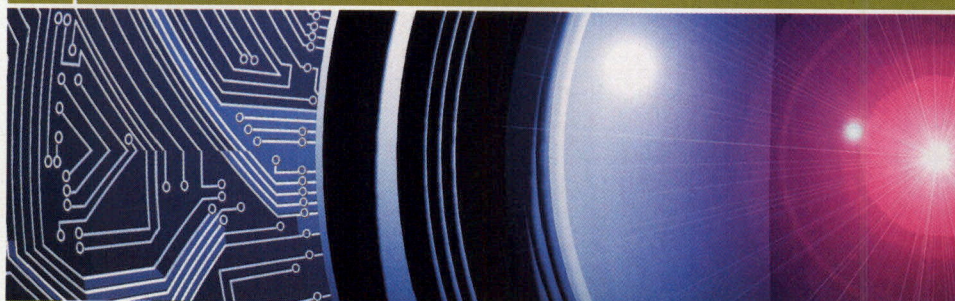
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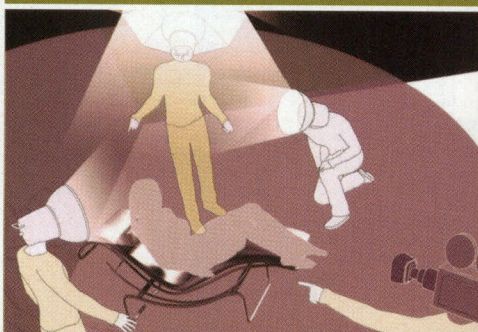
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FROM THE PUBLISHERS OF

DV World
The Creative Digital Video Magazine

Former readers of *DV World* will be pleased to know that this magazine was produced by the same company that used to publish their favourite DV magazine. You'll find this magazine has been crafted to the same high standard as *DV World*, and is filled with creative DV ideas. Welcome... and enjoy.

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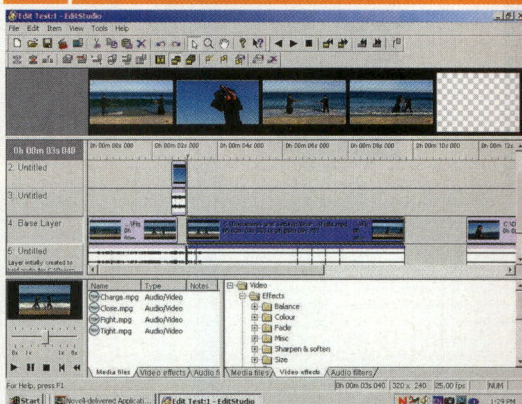
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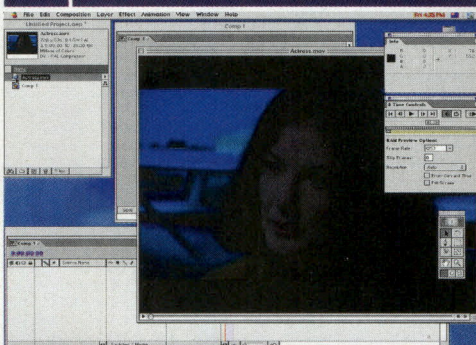
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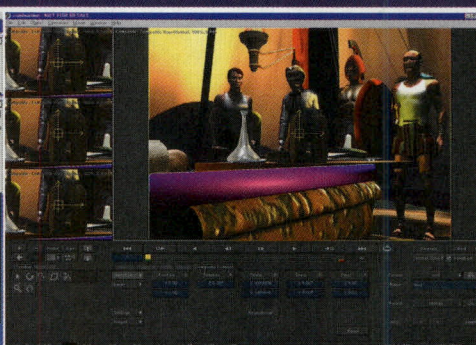
For PC only, this package will get you up and running and editing video in no time. Follow our expert tutorial starting on page 20...

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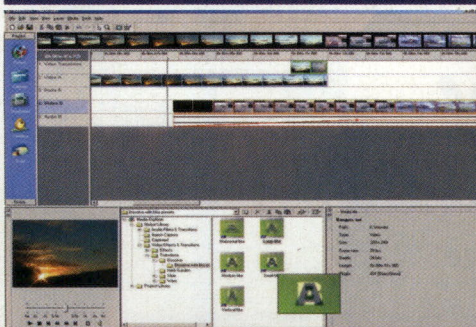
After Effects 5.5 (dual)

Adobe's compositor is the standard DV package, and these days even the big boys use it



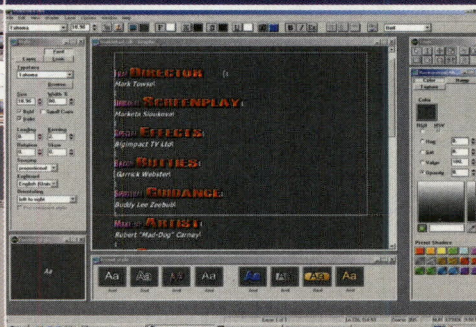
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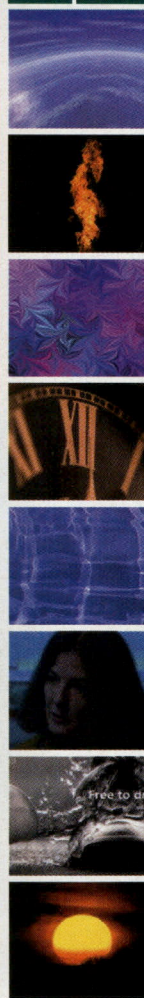
EditStudio 3.07 (PC)

Try out the upgraded features that the latest version of *EditStudio* boasts right here



TitleDeko (PC)

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[w] www.artbeats.com

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computer **arts special** CD CONTENTS

Illustration: Benedict Campbell. Email: ben@benedict.demon.co.uk

Digital Video Today

Welcome to our Digital Video Special. We'll kick off with the most important updates from the DV scene, and then we'll get into the nitty-gritty of desktop video creativity. Enjoy...

The National Association of Broadcasters show (NAB), which takes place annually in Las Vegas, is the largest electronic media

show in the world — and indeed one of the largest shows there is, full stop. Each year, any company which is even remotely connected with TV and radio broadcasting, film/video production and post-production, audio, multimedia, the Net, Webstreaming, satellite and even telecommunications gathers to discuss standards, announce new products and unveil new technologies.

While much of this stuff is extremely high-end and wilfully obscure technically speaking, it's always a benchmark for the year to come — and as good a place as any to examine the state of DV today. So here's a rundown on the major announcements from the more familiar companies exhibiting.

NAB 2002 news

Unusually, there were no major surprises from Adobe — the company only announced one new product. The *Plug-in Power Pack* is a set of 16 new plug-ins for *After Effects 5.5* — unusual for Adobe, which generally leaves plug-ins to other developers.

Among the new effects are 3D Glasses, which combines left and right views for stereoscopic viewing; Magnify, which is kind of self-explanatory; and Turbulent Displacement, which uses fractal noise to simulate dynamics such as flowing water, funhouse mirrors or waving flags. The *Plug-in Power Pack* will sell for a very reasonable \$25 (UK price to be announced).

Perhaps more interestingly, Adobe also announced that not only will it fully support Windows Media in all its products, but that it will actively push the benefits of the new version of WM due for release later this year. More on this later...

Discreet announced a new version of *cleaner* (which used to be known as *Media Cleaner*). *cleaner central* is a large-scale version of the encoding and streaming software, aimed at pros who need high-volume streaming output and workflow management. Essentially, it's like a networked version of *cleaner*, working across multiple computers in a distributed environment with fail-safe mechanisms.

There are no changes to *cleaner* itself, though — it still supports just about every format (including, of course, streaming), such as RealMedia, QuickTime, Windows Media, MPEG-1, MPEG-2 and MP3. *cleaner central* costs 6000 euros (£3670) for one license with server software and two transcoding nodes, with each additional node costing 1750 euros (£1070). You can find more information at [w] www.discreet.com.

Very special effects

Plug-ins specialist Boris FX, meanwhile, was busy with its own announcements. *CONTINUUM Complete* is a new package combining Boris *AE* and Boris *CONTINUUM*, so it now features more than 80 filters for Adobe *After Effects 5.5* and *Final Cut Pro 3*. The filters range from ultra-fast blurs to matting and keying tools, optical colour correction and some time-based effects.

NAB 2002 — the biggest electronic media show in the world. Full of earnest people in suits, but also full of video and film industry announcements.



A couple of new filters have been added and a few of the old ones have been tweaked, so this isn't just a bundle. One very useful new filter is Cartooner, which transforms video or static image into an outline animation. *CONTINUUM Complete* costs \$695, and can be bought from [w] www.borisfx.com, but will be available in the UK from Polar Graphics on [t] 020 8868 2479, [w] www.polar-graphics.com.

Graffiti 2.0 is also new from Boris, an upgrade to the vector-based titling and graphics app. Familiar vector tools such as text on path combined with title rolls, crawls and shuffles for tight typographic control.

One new and rather cheesy-sounding feature of version 2.0 is a 3D materials section, including presets for gold, copper, glass and so on, plus a full material editor for specifying reflectivity and other parameters. Boris is very proud of the way *Graffiti* integrates and renders directly within any of its host applications — just about every major NLE is supported. *Graffiti 2.0* costs \$495 (UK price TBA), and will also be available from Polar Graphics as above.

If proof were needed that the DV market — at least at the lower-end — is growing wildly, you need look no further at Maxtor's announcement of a new editing package. Yes, Maxtor, who make the hard drives — and, of course, who will quite happily promote the space-gobbling propensities of DV.

Maxtor *DV Producer* includes ArcSoft *ShowBiz* video editing (no, we've not heard of it either), along with an IEEE 1394 PCI card and a cable. All the basic editing facilities are included and, at a price of £80, the package sounds like a reasonable intro to DV editing. Head to [w] www.maxtor.com.

Back to Mac

Apple, of course, in its self-appointed role as 'Saviour of the Digital World', was busy touting *Final Cut Pro 3* and related products. Further reinforcing its intended message that *FCP 3* is a tool for pros, it announced *Cinema Tools*. This software is designed to enhance *FCP*'s capabilities for 24 frames-per-second editing capabilities, and includes support for film cut lists and edit decision lists (EDLs). ➤

If proof were needed that the DV market is growing wildly, you need look no further than at Maxtor's new editing package

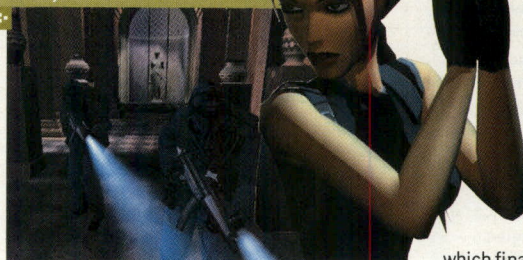


The idea is to shoot and finish on 35mm or 16mm film (whether HD or not), but then edit on a much lower-cost FCP-based system rather than a prohibitively expensive 'high-end' editing suite.

This, presumably, is Apple's plan to convince those who prefer to use film over digital cameras — and they are still very much in the majority — that they can nevertheless use digital means for the editing: shoot on film, edit on digital, output back to film. The software has already been used to edit two forthcoming flicks from Miramax: Steven Soderbergh's *Full Frontal* (which was filmed on a Canon XL1S), and indie fave *Blue Car*. *Cinema Tools for Final Cut Pro* should be available in May for £829 from [w] www.apple.com/uk.

Pinnacle Systems, that doyenne of low-cost editing solutions, mainly focused on

Nothing Real's *Shake* has been used on the likes of *Tomb Raider*. Now that Apple owns it, it will be used on the likes of your Macintosh.



Another round of toast

And finally on the new releases front, something of a blast from the past. NewTek, the people behind *LightWave 3D*, can justifiably claim to have kickstarted the whole desktop video revolution years ago with its *Video Toaster* for the Amiga. Now *Video Toaster 2* has just been released, and a software upgrade has been announced

which finally features PAL support.

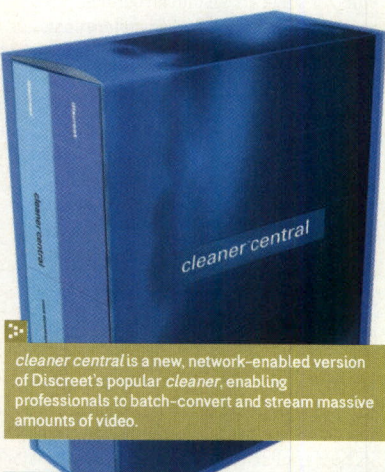
Video Toaster is a software-only package that works on a standard off-the-shelf PC, yet offers real-time uncompressed editing, compositing and streaming. It uses the number-crunching power of the processor rather than custom hardware to achieve this, and has met with considerable acclaim. It features more than 300 real-time DV effects, 'the world's fastest NLE', *Aura 2* for video painting, 3D modelling and animation in the form of *LightWave Express*, and just about every bell and whistle you can think of.

The PAL version is certainly welcome, and *Video Toaster 2* could see NewTek's return to the high-fliers of the DV world, in much the same way that *LightWave* has become a cheap and powerful package for 3D users. *Video Toaster 2* is \$2995, UK price TBA, and you can find more at [w] www.newtek.com.

The empire strikes back

So, what of the future? Well, application and hardware developers come and go, but the

Cinema Tools
has already
been used to
edit two
forthcoming
flicks from
Miramax:
Steven
Soderbergh's
Full Frontal,
and indie
fave Blue Car



cleaner central is a new, network-enabled version of Discreet's popular *cleaner*, enabling professionals to batch-convert and stream massive amounts of video.

Industry updates

Taking a look at what's new in the DV world...

Imagery specialist Artbeats has announced 16 new stock footage collections, all in D1 resolution (720 x 486 NTSC and 720 x 576

PAL). They range from Hawaiian tropics and ocean waves to abstract kaleidoscopic backgrounds and city scenes.

Monster Waves, for instance, contains dramatic footage shot by top cinematographers (perfect for recreating your own Guinness ad), while *Centrifusion* and *Centristorm* offer 44 intricately detailed kaleidoscopic wheels. Other topics include Kids of Summer, Mad Scientist, Flags of the World and Desktop Technology.

All collections are licensed royalty-free and prices range from \$249 to \$599 per collection. For more, see [w] www.artbeats.com

USB 2.0 is here, though many PCs don't include support for it yet. LaCie is to the rescue with its new PCI card featuring five USB 2.0 ports: four external and one internal, all of which are fully compatible with the standard version 1.1. USB 2.0 drivers for Win98SE/ME/2000 are included for easy installation. Version 2.0 is around 40 times faster than existing USB ports, offering speeds of 480MB/s instead of the current 12MB/s, and FireWire hard drives using the new format have already appeared.

The USB 2.0 PCI card costs £46 from LaCie [t] 020 7872 8000, [w] www.lacie.co.uk.

Miglia Technology has acquired the intellectual property and sole rights to Director's Cut from Power-R, an analogue to digital video converter. Two versions: Take 1 and Take 2 — are available, both made and developed in the UK. Director's Cut connects directly to a PC or Mac and is recognised as a DV camera, so no further drivers are necessary. Take 1 is 429 euros (£263) and Take 2 is 483 euros (£296). For more information on these, see [w] www.miglia.com.

real meat for the big boys is in getting your own particular standard adopted by the industry, thus pushing out the wannabes. Once a standard becomes, well, standard for whatever reason, it's very difficult to change.

MP3 is a fine example; any of the major players would dearly love to own the patents and charge hefty for them... but they don't. In fact, MP3 was developed by the Fraunhofer Institute and Thomson Multimedia, which does charge a per-unit royalty on any software using the format.

If you can't beat them, try beating them harder. Microsoft is excellent at using its brute force and massive market share to push its own standards and make them industry standards — Internet Explorer vs Netscape Navigator is a classic example.

And the same is true of Windows Media, MS' proprietary rival to the industry-

standard QuickTime. Later this year Microsoft will launch the next version of Windows Media, currently codenamed Corona — and perhaps the most surprising thing is the number of major players who have pledged wholehearted support for it.

But then, Corona does look very promising indeed, particularly from a DV film maker's perspective. It's a complete new set of technologies, including an optimised streaming solution called Fast Stream specifically aimed at broadband users, which Microsoft claims will completely eliminate buffering delays. Also included will be new versions of the Windows Media Player, the WM Audio and Video codecs, and WM Encoder.

More importantly, Corona is supposed to deliver DVD-quality standard definition video at half the data rate of MPEG-2, which

CineWave Classic from Pinnacle provides the hardware for uncompressed video editing for those already using *Final Cut Pro* (shown here).



means you could, in theory, burn two to three times as much video on a single DVD as is currently possible. That's an impressive claim if it turns out to be true and (most importantly) if the quality holds up. What's more, the new video codec should be able to offer the same resolution of video for download or playback on a PC at half the size of today's efforts.

Audio has been radically revamped too. WM Audio Professional delivers 5.1 channel sound (sampled at the full 24-bit, 96kHz rate) over a Web stream. And, knowing that features are nothing if application developers don't use them, Microsoft has made it many times simpler to incorporate Windows Media into code, using a plug-in model for the player, server and encoder.

Of course, we've heard claims like this before, but so far the response from many vendors has been enthusiastic. Adobe has pledged to include full Corona support in *Premiere* and *After Effects* later this year. Creative Labs will use WM Audio ►

Speed freaks

Although it was never consumer-led to begin with, Media 100's products focus more on the high end since its acquisition by Discreet. One of its newest launches is the 844/X, a turnkey system aimed at the broadcast market. It has a familiar NLE interface with a keyframe editing and compositing system and, in many ways, is like a standard PC (the main host is a Compaq PC).



Media 100 has spent four years and \$30 million designing a custom sub-system called the GenesisEngine, which consists of three PCI cards housing seven chips which fit in the machine. These deliver a throughput of 420MB/s, and can process eight streams of uncompressed 10-bit video in real-time. In other words, it's a machine for pros who need to get stuff done when the client wants it done.

With prices starting at £50,000, 844/X isn't exactly an impulse buy. But consider that an *inferno* system — the editor of choice for many — costs around five times as much and it begins to look like more of a bargain. See [w] www.media100.co.uk for more.

Microsoft's Corona is a complete new set of technologies, including an optimised streaming solution called Fast Stream specifically aimed at broadband users

Multicam is a new package from 365digital which it claims is unique. It enables editors to sync, preview, cut and edit between a multi-camera shoot as if it were a live camera switch. Two and four camera shoots are supported, and you can play, scrub and cut between them at will. *Multicam* runs on Pinnacle's Pro-ONE and DV500Plus system, as well as Matrox's RT2500 and DigiSuite systems. It costs £449 for the four camera version and £229 for the two camera. More from 365digital, [t] 0870 1646 365, [w] www.365digital.com

At a speech at the recent NAB, the Chief Executive of BBC Technology, Philip Langsdale, predicted that by 2007 the market for media technology service providers will triple to \$27 billion in the States and Western Europe. Langsdale believes the US will have the lion's share, with \$16 billion — almost quadrupling from its current level — with the UK tripling its market size to \$2 billion. The predictions are the result of research commissioned by BBC Technology from consultancy firm Analysys. It wasn't hard to predict that Langsdale also concluded that traditional linear, 'water cooler' TV would not die either, though.

2d3 has developed support for Adobe *After Effects* within its acclaimed camera tracking software, *boujou*. It's the world's first and only automated system, calculating the necessary tracking points from footage itself, and is now used widely within the industry. A free plug-in for *After Effects* is now available for download from [w] www.2d3.com/2d3/support/faq.shtml#aftereffect (Windows version, 5.5 only). A demo of *After Effects* 5.5 can also be found on the cover CD.

Effectively,
Apple is
buying up its
competitors
and using the
technology
to its own
advantage.
Nothing
wrong with
that,
Microsoft
does it all
the time

Professional with its flagship Sound Blaster Audigy 5.1 external sound card, and both Steinberg Media and Syntrillium Software will incorporate it into their packages. Avid previewed support at NAB within its high-end DSJHD system, and Discreet will make it a major part of *cleaner's* capabilities.

Nothing Real no more

Corona isn't going to make QuickTime disappear overnight, if at all, but Apple knows it can't rest on its laurels if it wants to keep the hearts and minds of creative users. This February it quietly acquired Nothing Real, a California-based software developer with less than 25 people which just happens to produce two of the best high-end video packages on the market.

Both *Shake* and *Tremor* are used extensively within the film industry for 3D compositing and animation, and both have an extremely good reputation. But then they should do, with *Tremor* systems costing up to \$140,000.

Apple plans to use Nothing Real's technology in future versions of its products. It's not the first time this has happened: it bought *Key Grip* from Macromedia and incorporated it into *Final Cut Pro*; it bought Spruce Technologies and Astarte, and not long after, *DVD Studio Pro/iDVD* appeared, presumably using the same technology.

Spruce was a Windows-only company; now its technology is Mac-only. And it's the same for Nothing Real, whose software ran on Windows, Linux and IRIX only, and which had no plans to develop for the Mac.

USB 2.0: this time it's useful

Standards: you wait years and then two come along at once. Just as IEEE 1394 (FireWire, iLink) has become accepted as the standard high-speed digital interface — particularly for DV devices — USB 2.0 pops up, offering an even faster data rate and a solid history of older USB 1.1 devices. So, will USB 2.0 usurp

Products such as LaCie's StudioDrive already support USB 2.0 — but don't expect to see it on DV cameras any time soon.



interfaces perhaps becoming an option. Many companies have invested a lot of time and money in FireWire, and besides, apart from DV cameras, very few consumer (ie non-PC peripheral) products need the massive speeds offered by USB 2.0.

Effectively, Apple is buying up its competitors and using the technology to its own advantage. Nothing wrong with that — Microsoft does it all the time, for instance — but does Apple plan to rule the creative market this way, and how do Mac third-party developers feel about their market being swallowed up by the mothership?

Only time will tell, of course. One thing's for sure, though: a much cheaper incarnation of *Shake* and/or *Tremor* is on the way, which is great news for end users. But, it may well alienate quite a few of Apple's proponents — not least Adobe, which was

FireWire, and will we all have to change over again? In short, no — at least not in the consumer products domain. USB has been the most successful interface in the history of PCs since its introduction in 1996, and USB 2.0 is likely to be just as well-accepted. PCs with 2.0 ports are already available, as are various external hard drives and low-cost adaptor ports.

But FireWire will remain for a long time yet among consumer products such as DV cameras, digital cameras and MP3 players, with USB 2.0

already rumoured to be quite miffed when *Final Cut Pro* arrived on the scene to rival *Premiere*.

Get out there

Of course, all the hardware and software in the world counts for nothing if no-one ends up seeing your work. One of the great advantages of DV has always been its ease of distribution across the Internet or other electronic medium. However, in the UK at least, broadband access has been expensive and hard-to-find, even with the introduction of ADSL.

Now, fortunately, BT has drastically reduced the price it charges ISPs for broadband access, as well as cutting the price of its own home Openworld service. As a result you can now have broadband ADSL access for just £23.44 a month after set-up fees, including all call charges (from Pipex, [w] www.pipex.com) — which isn't all that much more than an all-in-one dial-up package from other providers.

This is good news for the DV enthusiast. The US has enjoyed cheaper call rates for years now, and while these prices are still much higher than in the States, it's a step in the right direction. Finally, it's become viable to upload your creations to film sites — and, of course, download or stream other people's work at a quality that's actually worth watching.

Assuming people actually want ADSL — and the massively increased take-up numbers since the price cut seem to indicate they do — we can certainly look forward to some exciting times in the field. DV has always promised to revolutionise film making, and while it's partly there, the fun hasn't even started yet. DV today may only be the trailer — the main feature promises to be quite spectacular... **ca-s**

Industry updates continued...

Digital Anarchy has released a new 16-bit gradient filter for *After Effects* and *Final Cut Pro*, called, not all that surprisingly,

Gradient! As well as offering all the features of *After Effects'* native gradient tools, *Gradient!* enables you to control the gradient with expressions, and it can be animated or changed dynamically by other filters or events along the timeline. Up to six 16-bit colours can be used. *Gradient!* costs \$49 and is available from [w] www.digitalanarchy.com.

Apple has acquired IEEE 1394 specialist Zayante to further its commitment to the format it partially invented. FireWire, as

Apple dubbed it, became IEEE 1394 and is now the industry standard for connecting digital devices, particularly DV cameras. Zayante was founded in 1996 and manufactures many of the chips used by OEMs in FireWire products. For more on this, go to [w] www.apple.com/uk.

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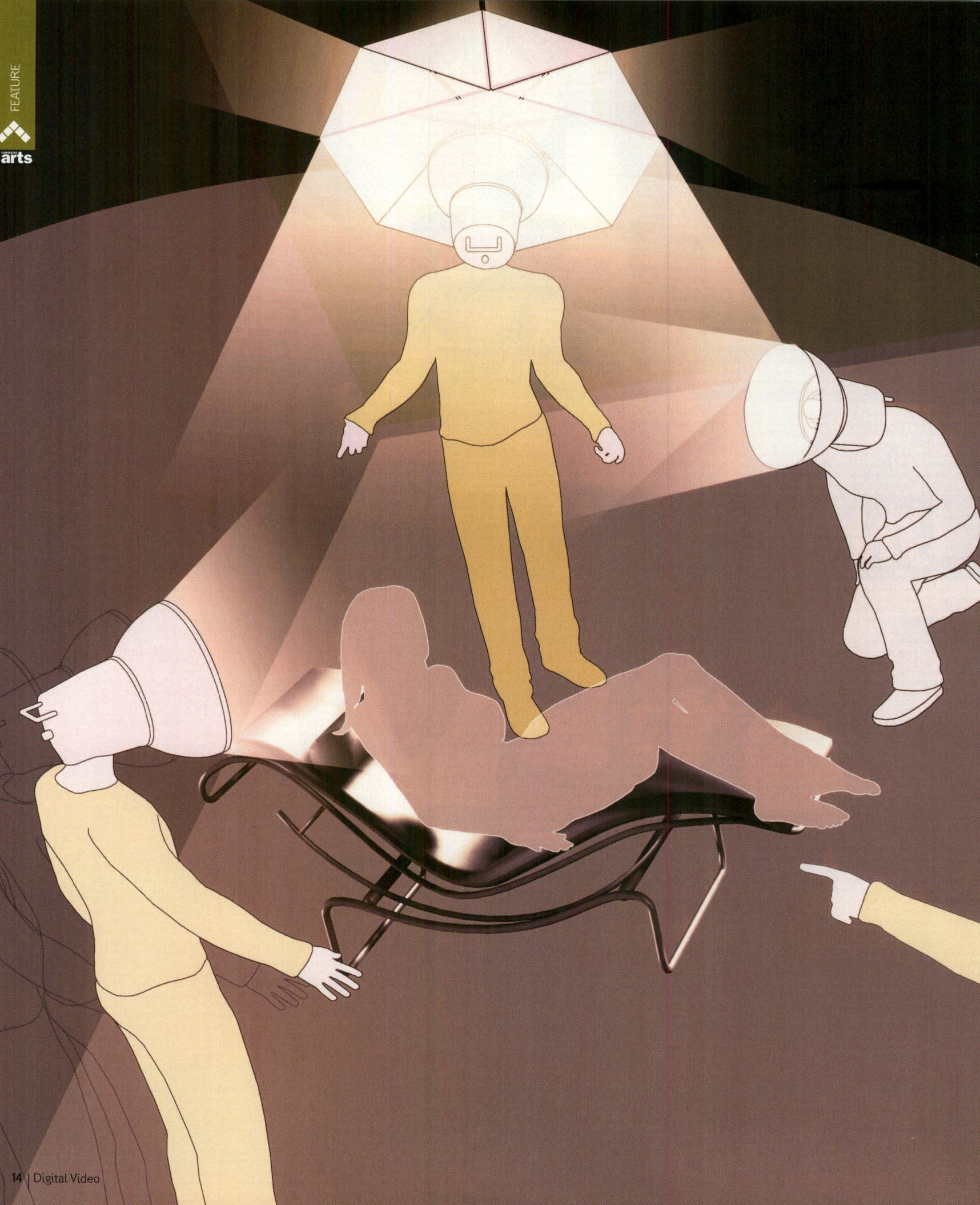


Illustration: Jacey [e] jc@jacey.com [w] www.jacey.com [w] www.getart.info [t] 0207 636 1064

50 camerawork tips

The best editing and effects software in the world won't help if your footage isn't up to scratch. Here are 50 tips on getting the best from your day on location...

Planning and organising



1 Assemble a team

Your crew might be made up of dozens of people, or it could just be a camera operator and a presenter. Either way, everyone involved needs to know what you're trying to do, and what their jobs are. Your main constraint on a shoot is always time, so learn to manage it well. Make detailed plans, but be aware that your skill will be defined by how imaginatively you adapt when those plans start to crumble.



2 Shot list

Make a shot list, and know how long each shot will take, but don't set it in stone. Things will change during shooting, and you'll have to be flexible. Get your master shots done first so that if you have to abandon something, you can still cut your project together.



3 Edit in your head

Learn to edit in your head, while you're shooting. Know what you have and what you need, and stop when you've got it. Don't end up with five hours of footage for a 15-minute production — it'll only make your edit slower, and your crew less cooperative.



4 Moving shots

Moving the camera can often produce striking results, but it's best used with caution. It usually looks best to start and finish a move without cutting, so moving shots will dictate the pace of your work. This can limit you in the edit. Here are a few types of move...

Track: This is where the entire camera is moved laterally — either towards or away from the action, or from side to side. Tracking shots often require a lot of setting up as the camera needs to be mounted on wheels, and often on tracks.

Pan: The camera remains stationary, but is swung around on its axis. It's used to take in a panoramic view, or move the action from one subject to another.

Zoom: This is when the camera is zoomed in or out. This produces an unnatural movement which is not often

used except in documentary or news work, or where you want to remind the viewer that they're watching a filmed event.

Crane: Craning is when the camera moves up or down. This is usually used to provide a larger perspective, or so that the viewer can simply concentrate on a single subject.

Tilt: This is where the camera is either tilted up or down. This move is used to take the viewer's attention from one subject to another.

People

5

Close ups

Best used for intense moments. The person's head fills the screen. Extreme close-ups are even tighter with just the face, or part of the face in shot.

6

MCUs

Medium close-ups are the staple of most productions. Give the subject a little room above the head, and cut them off just below the shoulders.

Newsreaders and presenters are usually given this framing.

7

Mid shots

Frame the bottom of the shot around the waist, but avoid cutting the subject off at the elbows. Give them more head room than on an MCU. This shot allows a little of the background to be seen, and so places the subject in context.

8

Long shots

A full length shot with the subject filling all or part of the height of the screen. Don't cut people off at the knees or ankles, it tends to look odd.

9

Two shots

Two characters are in shot at once. There are many variations, but the idea is to show the relationship — physically and emotionally — between them.

With a two shot, one character is seen to be excluded while the other is in control.

10

Eyes on a third

When shooting people, whatever the type of shot, try to compose the image so that the subject's eyes are about a third of the way down the screen. This gives a balanced shot.

11

Looking room

If the subject of your shot is looking to the left or right, bias the composition so they've got some space to look into. Don't butt their nose up against the edge of the screen. The more of an angle they're looking at, the more looking room they need.

Shooting live events

12

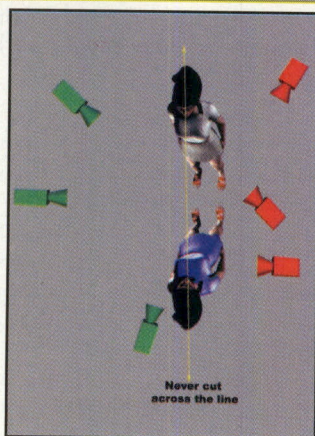
Multiple cameras

Use more than one camera. You can't hope to cover any live event properly with just one camera. You need at least two or you can't cut. Position the cameras at about 45 degrees to each other if they're focussed on the same point.

13

Crossing the line

If you're shooting a conversation between two people, imagine a line drawn between their eyes. However many shots you take, you should always keep the camera on one side of this line. If you don't, the scene will look odd when cut. This is because a character who began looking from left to right will appear to be looking from right to left when you cross the line. This confuses the viewer. Even football matches are shot like this — the cameras stay on one side of the pitch so that the teams always play in the same direction (left to right, or right to left). A little reverse angle caption appears onscreen if they decide to break the rules.



The long shot places your subject in context, and allows you to establish the relationship between it and the rest of the scene.



The two shot sets up the relationship between two characters, and says a lot about the way they're interacting.

14

Still and wide

Always keep one camera still and wide. This is your master shot and, as long as it's good and solid and covers all the action, you can be as experimental as you like with the other camera(s).

15

Soundtrack

Try to get one good continuous soundtrack. That way when you're editing you have something to cut to (if the event uses a PA system, try to get a feed from that).

16

Cut-aways

You can never have enough cut-aways. Any spare moment you get, film crowd reactions, scenery, backdrops or anything else that's generic enough to drop in when you need a change of scene or a cut.

17

Know what's going to happen

Make sure you have as much information as you can about the way the event will unfold, and plan your shots. Make sure someone warns you when something is about to happen — if you miss the opening lines of a speech because nobody's told you it's about to start, you will still get the blame.

18

Use a clapperboard

If you've got more than one camera, use a clapperboard so you can line up the sound and vision on both camcorders during the edit. Having a quick way to sync up the project means that the whole edit will be a lot easier.

Shooting for effects

19

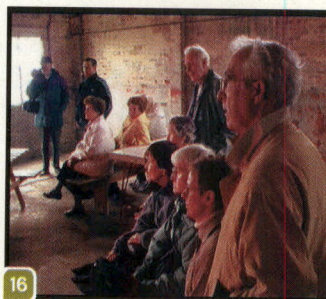
Know your effects

If you're shooting material to which effects are going to be applied, go through each shot with your effects team before you shoot it. Make sure you get everything the effects people will need and get it right, because corrections can be expensive and unsatisfactory.

20

Effects shot

An effects shot with a moving camera is likely to take twice as long and cost twice as much as one done with a stationary camera. If the camera's moving in 3D, you can double your costs again.



Cut-aways enable you to switch from the main speaker. This allows you to cut sections from the dialogue without being obvious.



Events often have a pace of their own. Make sure you're in the loop, otherwise you'll miss the beginning of important moments.

21 Good lighting
Your scene should be lit properly. If you're doing blue-screen work, the quality of your finished effect is directly dependent on the evenness of the lighting on your backcloth. Five minutes spent getting the shot right is worth hours in the effects studio.

22 Understand what's involved
If you know what you can expect of digital effects, then you can plan your shoots much more effectively. For example, a fleet of flying saucers could be produced in an hour or so, but it's likely to take your effects team a week to remove an unwanted car from a scene in which the camera is in motion.

Lights and sound

23 Natural light
Modern cameras are good at producing good images in natural light. You don't need to swamp your subject with light any more to get a good result. Use lights to compliment natural light rather than to replace it where possible. It's a lot faster, and produces a more natural result.

24 Daylight
Be mindful of the way daylight changes over the course of your shoot. If your shoot is a long one, you'll need to work a lot harder to keep your lighting consistent.

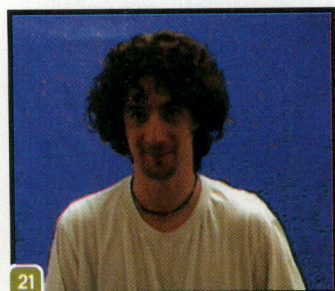
25 Catch lights
Catch lights are a great help. Keep a couple of lights at the ready for just lifting dark areas of a shot, highlighting the edges of objects, or creating a glint in an actor or presenter's eye.

26 Don't light from the front
Don't put your key light right behind the camera. This creates a very flat image, the subject will be lit too evenly, and it will not give visible shadows to define it's shape. Keep the light about 45 degrees to the camera, then place dimmer fill lights to balance the image.

27 Pay attention to sound
Poor sound is the quickest way to make your production appear amateurish. Camera-top microphones are usually tuned to receive audio from the widest possible range, so they'll pick up background noise just as strongly as foreground sound.

28 Tie-clip mics
Tiny, inconspicuous tie-clip microphones pick up sound from a radius of about 30cm around them. This makes them absolutely ideal for situations in which there's a lot of background noise. You'll need to keep them close to the subject, however, and sound engineers often have to come up with innovative ways to hide the microphone in the shot.

29 Boom mics
Boom mics tend to be highly directional. That is, they pick up sound only from directly in front of them. They're attached to long poles so that they can be held close to the subject but kept just out of shot. They're used when you want



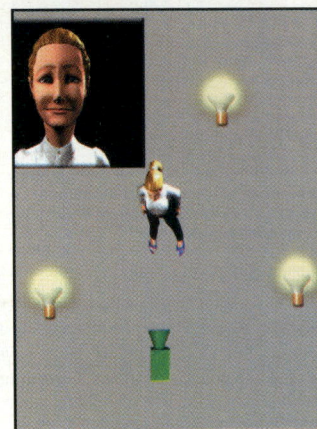
Blue screens need to be well lit if they're to work. The worse they are, the worse your eventual effect will look.



Natural light can achieve great results, so use it if you can.

30 Basic lighting

The most common lighting arrangement, used in all kinds of programming, is the three-light set up. First, a key light is placed at 45 degrees to the camera. This is strong enough to light most of the scene fully. Second, one or more fill lights are added at roughly 45 degrees in the opposite direction. The fill is about half the brightness of the key light, and prevents parts of the subject being in deep shadow. It's often diffused, or angled slightly away from the subject so as not to be too harsh. Thirdly, a bright backlight is added behind the subject, highlighting their outline to separate them from the background.



to exclude background sound, but need to be able to quickly point the microphone at whoever is talking at the time.

31 Handheld mics
Handheld microphones tend to be limited in range so they have to be held close to the face, but they pick up sound from all around. If you don't mind having the microphone in shot, and don't want to keep attaching microphones to everyone who needs one (i.e. if you're interviewing lots of people, or doing short links), they're ideal.

32 Use a mixer
If you're using more than one microphone, you'll need a mixer box. This enables you to balance the volume level for each microphone individually, and feed the mixed result into the camera.

33 Do a sound test
Get each person with a microphone to speak at their normal volume, and then set the mixer at a good level for each so you don't have to fiddle with the mixer during the shot — one common way to get a level is to ask the speaker what they had for breakfast.

Camera operation

34 Striping a tape
In order to provide continuous timecode (necessary for accurate batch capture on some systems) you may need to stripe your tapes before recording. This means recording a continuous shot for the entire length of the tape then rewinding and recording your actual takes over the top.

35 Lightweight
Today's camcorders are very light. That means they tend to be more manoeuvrable, but less steady than heavy shoulder-mounted cameras. A good solid tripod with a smooth head (a fluid head if possible) is a must for still and panning shots, and try to develop a good grip for handheld shots.

36 In and out
Give plenty of "in" and "out" time before and after your shot. Let the camera run for a few seconds at the beginning and the end of the take. That way your editing will be a lot easier.

37 Focusing
Tiny shifts in focus can be difficult to judge in the camera's viewfinder, but they're very obvious in the finished edit. Minimize them by turning off the auto focus on your camcorder, and being very careful with your manual settings.



39

How wide can your camera go? Shooting inside a car often causes problems if you can't zoom out far enough.



43

Auto-focus can often pick the wrong part of the shot. Here the effect was intentional, but a camera hunting for focus can be very distracting in any production.

38 Don't re-use tapes

It's tempting to record over old material when shooting, but the more often you use a tape, the more likely it is to suffer from drop-outs and other video problems. Such interference is rare — even on mini-DV tapes, but for the £5 that a new tape will cost you, is it really worth risking your entire shoot?

39 Know your camera

Knowing what you can achieve with your camcorder is essential. Understand how it handles low light, and know how wide you can get the shot if you need to film in small spaces.

40 Automatic functions

Auto colour balance is generally pretty good on modern machines as is auto exposure — although, be careful if lighting conditions are rapidly changing. Auto focus is usually best avoided if you can, because it can get the emphasis wrong — especially in low light.

41 Patience

Time is always a pressure on a shoot, and everyone else will be encouraging you to rush. Don't. The few seconds you spend getting the focus or framing just right will pay off in the finished product. Wait for the sun to come out from behind the cloud, wait for the cars to move out of shot, and when everyone else is ready to leave, don't be afraid to ask for a re-take if you didn't get what you wanted.

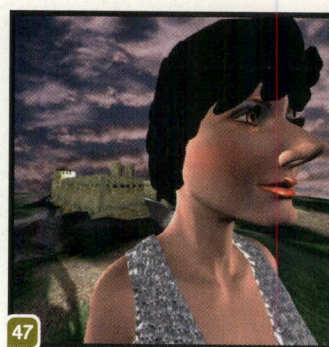
42 Check your white balance

Check any time the lighting changes that your shot is correctly white balanced. If you don't, you could find your shots look odd when cut together, and have a yellow or blue tint to them.



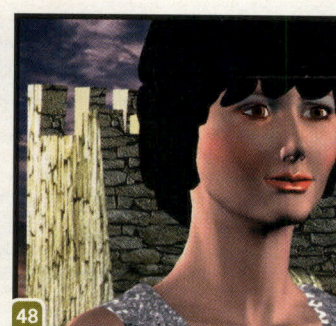
42

Poor white balancing can give your shots a wash of colour. Here the camera was set for interior (yellow) lighting, so the blue of daylight is far too strong.



47

Wide angle lenses exaggerate perspective, distorting the image.



48

The same scene as to the left, but through an extreme zoom lens. The image has no depth, and distant objects appear close together.

Paraphernalia

43 Tripods

There are three types of tripod. The cheapest are friction heads that are designed for still photography — smooth panning and tilting are almost impossible. The camera will jerk and judder if you move it. Ball-bearing heads rotate much more smoothly, and cost around £100–£200. True fluid heads enable the camera to rotate on an oil-filled joint. They create very smooth motion but can cost several hundreds of pounds.

44 Steadycam

The steadycam is an apparatus attached to the camera operator which uses a complex set of weights and gyroscopes to keep camera motion smooth and level however the operator moves. It combines the freedom of movement found in hand held shots with the smoothness of a tracked camera.

45 Monitors

If you can, it's good to have a small TV monitor attached to your camera. Viewfinders and fold out screens are all very fine but you'll only know what your shot looks like on TV by looking at a full-size screen.

Lenses and zooms

46 Lens limitations

Most lower price camcorders (those under about £2500) are limited to the lens they're provided with. Most above that price point will accept interchangeable lenses. That said, there isn't an all-pervading standard so you're pretty much stuck with the choices your manufacturer offers.

47 Wide angle lenses

If you're shooting in a small space, a wide angle lens will let you get a better range of shots. The down side is that extremely wide angles produce a perspective bending fish-eye look, making noses look larger, and curving the horizon.

48 Zoom lenses

With a zoom lens, you can get very close shots on distant objects. The main disadvantage is that the higher the magnification, the more difficult it is to get a steady shot. Any movement of the camera will be magnified.

49 Digital zooms

Don't use a digital zoom. These simply magnify a portion of the image once the camera's captured it. This leads to a loss of image quality, which increases with distance. It may not be obvious in the viewfinder, but it will be on a television screen.

50 Lens filters

In order to alter your image, you might want to consider adding filters to your lens. Some filters act as sunglasses (like the ND filter that's included with many camcorders), whereas others colour or diffuse the image. Before you add a filter, think whether its effect might be more controllable if added in post-production.

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Christopher Kenworthy is the author of *The Quality of Light*, and recently won the Grass Roots Film Festival 2002 for his short science fiction film *DREAMER*. You can contact Christopher via email at [e]christopherkenworthy@hotmail.com.



Files on disc

You will find *Charge.mpg*, *Fight.mpg*, *Close.mpg* and *Tight.mpg* on the cover CD in the Tutorial\Edit folder to accompany the tutorial. There is also a full version of *EditStudio 1.5* for PC. You can upgrade to *EditStudio 3* and save up to 66 per cent (see page 25). To take advantage of the upgrade you will need the following User ID: 1082243620.



Editing packages can set you back thousands of pounds, but we have the full version of *EditStudio 1.5* on our cover CD. This fully functional software enables you to load up video clips and edit them into a professional-looking sequence. Whether you're making a home movie or a feature film, it's easy to put your footage together. Better still, *EditStudio* is easy to learn and, once you know the ropes, it has all the power you need to work with titles, filters and transitions. All of these special effects can be applied through drag-and-drop, so it's easy to experiment.

EditStudio's visual tools enable you to put clips together with ease. It's a visual environment with each clip represented by a clear, visual frame.

The sequence used for this tutorial features the actors repeating martial arts moves, which were shot from a different angle each time. Each performance is slightly different, and getting them to match is an art. With *EditStudio*, you can follow this tutorial accurately, and experiment by changing the cuts slightly to see the difference. *EditStudio* makes it easy to experiment, correct mistakes and, when you're happy, it's one simple step to export your masterpiece. ➤

Part 1: Editing a short scene in EditStudio 1.5

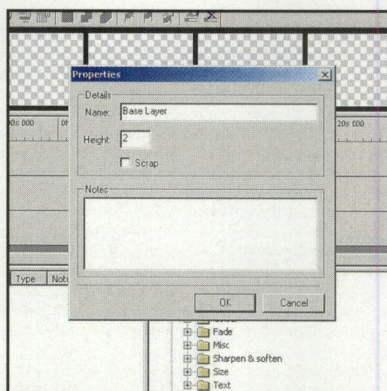
These techniques are basic tools to edit your footage, from home videos to complex dramas...

Matching up

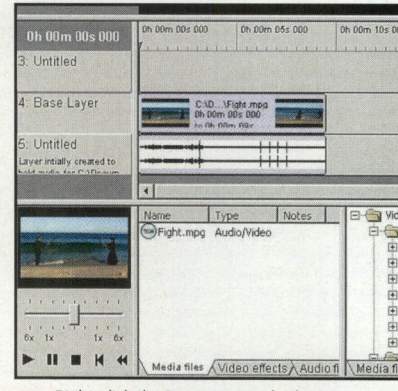
When editing a sequence together it's rare for a performance to match all the way through, whether it's a fight or a conversation. In this case, even when the actors make the same moves, the waves are doing different things in the background. To choose your edit points, think about what the audience is watching, and where their attention is being drawn. The audience will only notice the waves if your edits are so dull that they lose interest in the sword action.



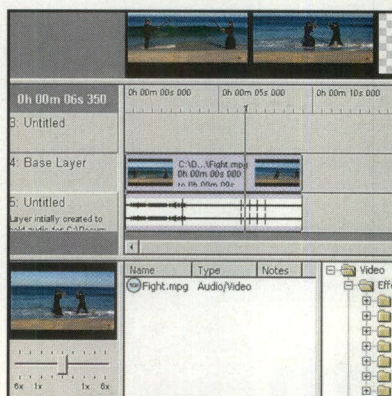
1 When the application launches it asks what you want to do. Choose to create a new project, and select Videotape>Medium>PAL. Go to Save As and save your file as Edit Test. You're now ready to import your footage.



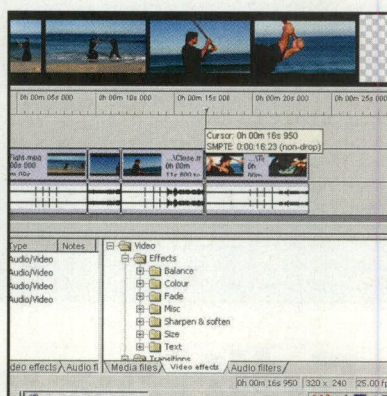
2 Double-click on the layer called Untitled 4, and rename it Base Layer. Your clips are spread out on these layers from left to right. If you use several layers, the highest at any one time will be visible in the preview and output.



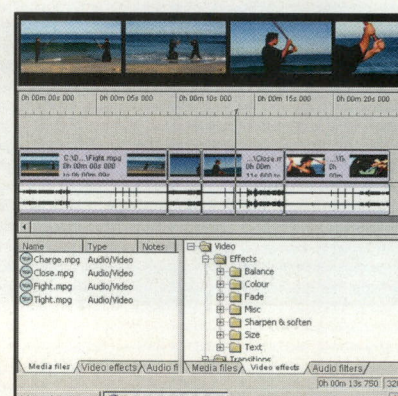
3 Right-click the Base Layer and select Insert>Media File. Choose Fight.mpg, which is on the CD in the Tutorial\Edit folder. You will see the clip appear as a stripe in the layer. The image appears in the preview window to the bottom left. Treat this preview as representing your final output.



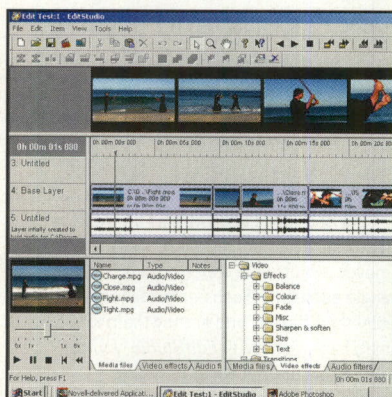
4 Play the Fight.mpg clip by pressing the play symbol (dark triangle). As the clip plays, notice that the time cursor – a vertical line – drifts from left to right over your layers. This cursor marks the frame that is currently being played in the preview.



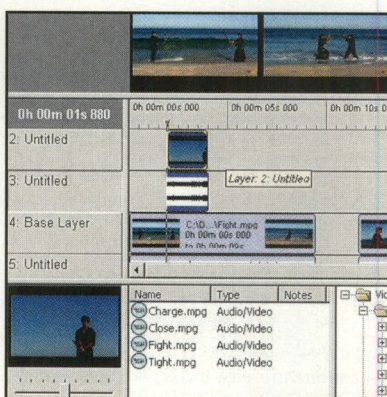
5 Move the time cursor to the end of the Fight clip by dragging it, or by pressing the Up arrow twice. Now repeat the Insert process for the other three clips on the cover CD: Close.mpg, Tight.mpg and Charge.mpg, which should all appear on the same layer one after the other.



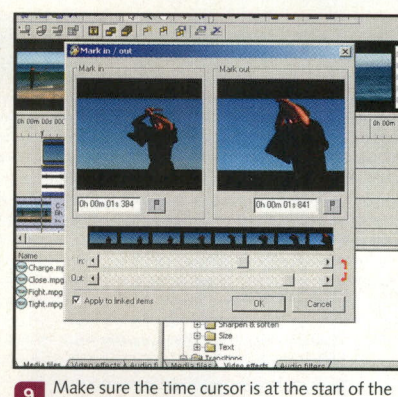
6 Play the clips and become familiar with the footage. Note how the action is apparently the same, but differs at key points. Try to imagine how these clips could be run together. Also notice how the sound changes according to where the camera is in relation to the actors.



7 To make your first cut, watch the preview while dragging the time cursor over the Fight clip. Go to the point where the right-hand man has just moved. Only two frames of movement are required, just to indicate that he's set off.



8 Click and drag the Charge clip up to the next layer (Untitled 2), and then drag it to the left until it reaches the time cursor. Press play to see how it looks. You'll see that the cut occurs at the right point, but the second clip is out of sync.



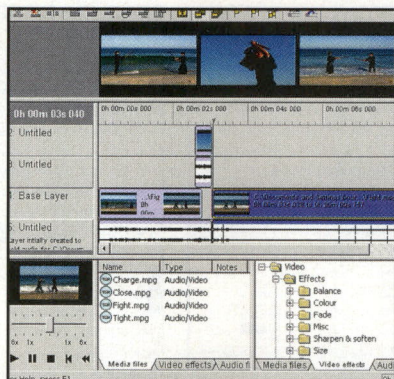
9 Make sure the time cursor is at the start of the Charge clip, then right-click it and choose Mark In/Out. The sliders that appear will enable you to set In and Out points where the clip starts and ends. Slide the In point to where his sword movement matches that in the first clip. Set Out a few frames later and click OK.

Filtering

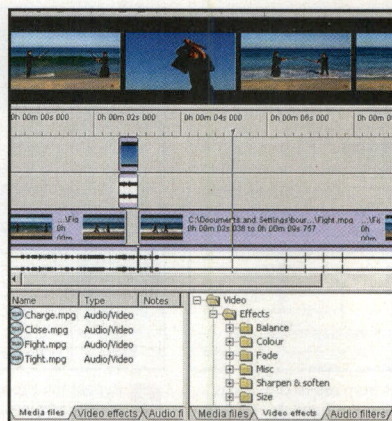
The filters, both audio and video, can be dragged from their folders into layers above your clips. These filters then work on the clips beneath them, but you need to right-click them and alter their properties to fine tune them. For transitions, make sure that the filter is stretched out around the edit point to cover both clips. The wider it is the longer the transition will be.

Zoom

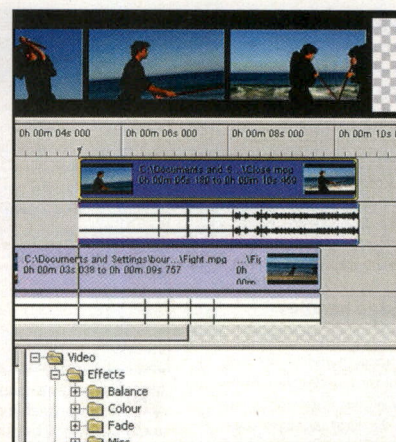
To get a closer look at your clips in their layers, right-click then select Zoom, and choose 2 seconds. This means only two seconds worth of clips are shown in the layers, making it easier to drag and manoeuvre clips. For the bigger picture, you can zoom out in the same way.



10 These new visuals don't match, so position the time cursor half way through the Charge clip, then select Fight. Roll the pointer over Tool icons to see their names, and click the Split tool when you find it. This cuts Fight in two. Drag the right-hand part of Fight to the end of Charge.



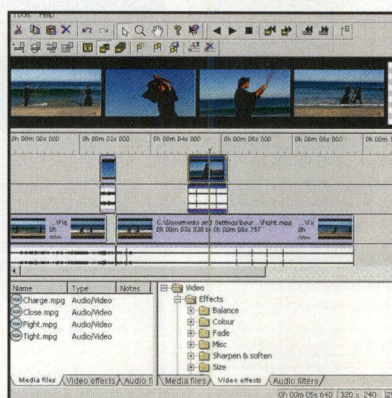
11 Place the time cursor at 05s 18, where the left-hand figure moves. This isn't where he actually lunges, but we can make it look as though this is the start of his lunge.



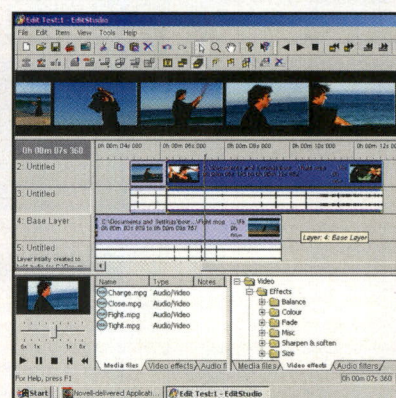
12 Drag the Close clip up to Untitled layer 2, and place it by the time cursor. Right-click the Close clip to mark its In and Out points.



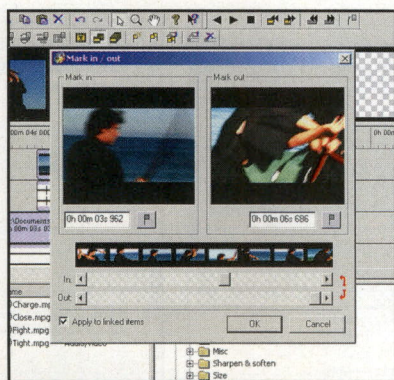
13 Again use the sliders to set the In and Out points. Set the In point two or three frames after he moves forwards. Imagine how this will match with the other footage. Set the Out point at the second sword clash.



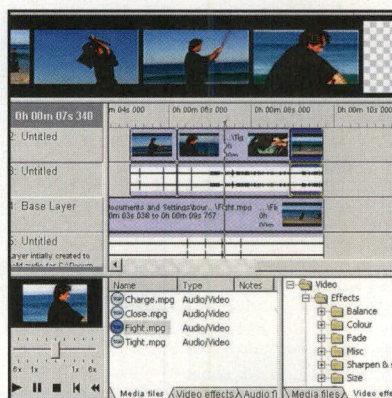
14 View your sequence and then experiment with sliding your clip up and down by dragging it. The In and Out points remain the same, unless you drag the edge handles, which changes the visible content of your clip. This combination of techniques enables you to find the correct edit points.



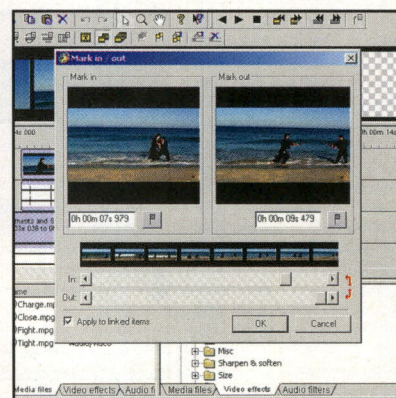
15 Drag the Tight clip on to the Untitled 2 layer, and align it with the right-hand edge of the last clip. Play through to see how the timing mismatches. An edit should occur during an action that is the most similar, or the most visible, so a sword clash with work well.



16 Right-click Tight and select Mark In/Out, and use the sliders. You'll notice that there are three sword clashes up high, rather than two. Select the last high clash. Although their swords and arms are in the wrong places this gives the best continuity for the downward swing.



17 The push doesn't match as we go back to the Fight clip, so click on the Fight clip in the list of media files (below the layers), and drag it to the end of Untitled 2. Click and drag on the edges to shrink it down to the length of a few frames.



18 Using the same techniques you've used before, mark the In and Out points for this new version of the Fight clip, so that the movement of the push matches. You have now completed a basic edit of this sequence, so watch it through.

Part 3: Sound changes

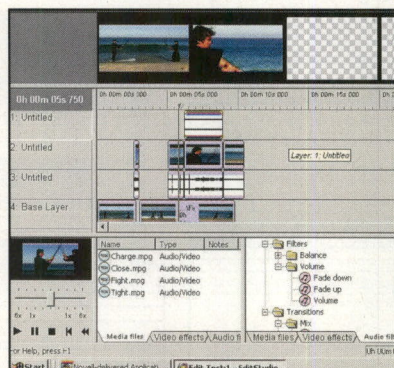
Now you have your edited sequence, we need to sort the sound...

Upgrade offer

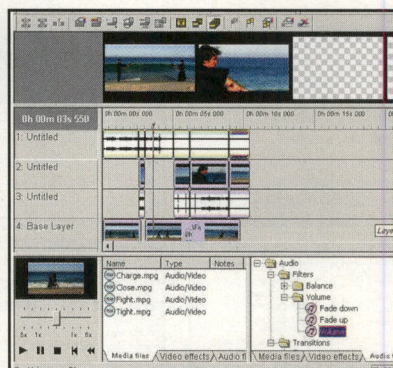
Computer Arts Special has teamed up with Pure Motion to offer readers the chance to save up to 66 per cent when upgrading to *EditStudio 3*. To take advantage of this offer, visit [\[w\] www.puremotion.com/computerarts](http://www.puremotion.com/computerarts), or see the facing page. To upgrade to version 3 you will need to quote the following UserID: 1082243620.

Edge handles

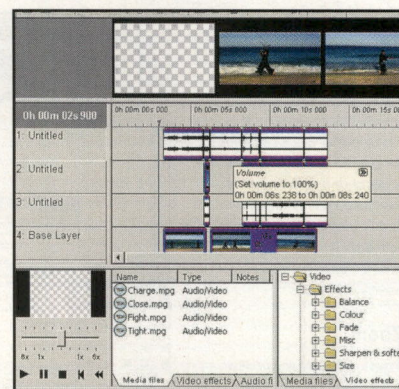
If you click on a clip and drag it, you move it around in time. But you can also affect the In and Out points, and therefore the content of the clip by dragging the edge handles. Edge handles aren't visible, except as the right and left-hand edges of your clip, although your cursor does change when selecting them. By dragging a clip and altering edge handles, you can try many variations on an edit in a short amount of time.



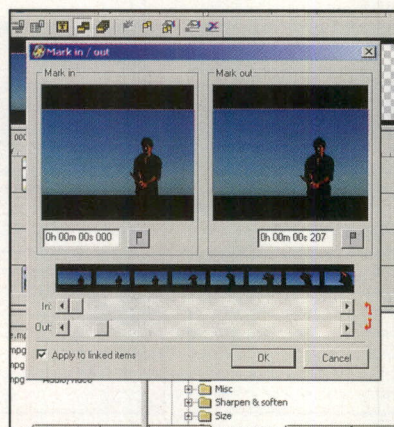
- 1 The volume changes from clip to clip, and is most noticeable during the Tight clip. Click the audio tap on the bottom right, to see the Audio filters. Find the Volume filter and drag it onto the layer above the Tight clip. Right click this and select Properties, then turn the Volume to 20 per cent.



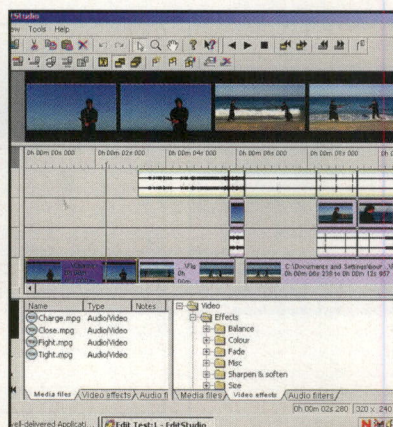
- 2 Repeat this process for all the clips, matching the sound throughout. If you feel ambitious use the Mix filter to change the volume of all clips at once. The sword clashes no longer match from layer to layer, so you may want to use split and edge dragging, to remove lower layers of sound.



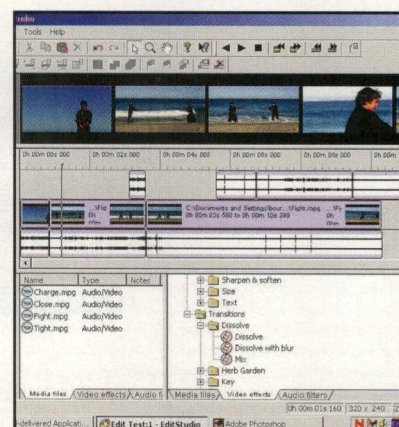
- 3 To show how one cut can change the feel of a sequence we'll rearrange the opening section. Select all clips with Control A, and then drag all the clips to the right by a second or two. This leaves some space to work on the opening.



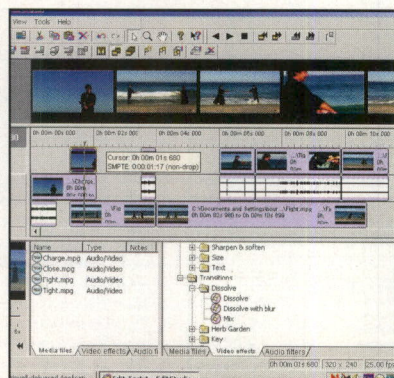
- 4 From the Media Files, drag a new copy of Charge to the front of the sequence, in the Base Layer. We will slow this clip down, so that it is almost still, enabling us to see the motionless fighter before we cut to the wide shot.



- 5 Locate the Item Transform tool by mouse rolling over the tool icons. Click this, and select a rate change of 0.2. This slows your clip down to 20 per cent of its original speed. Press OK, and watch the clip.



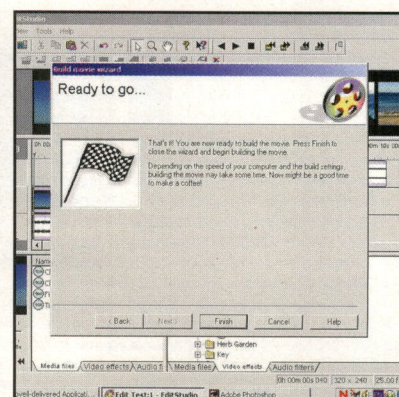
- 6 Drag the right edge handle of Charge to 1.5 seconds. Select all clips (Ctrl+A), and then Ctrl-click on Charge to deselect it. Drag all the selected clips to the edge of Charge. Play it and you'll see that the cut is too harsh.



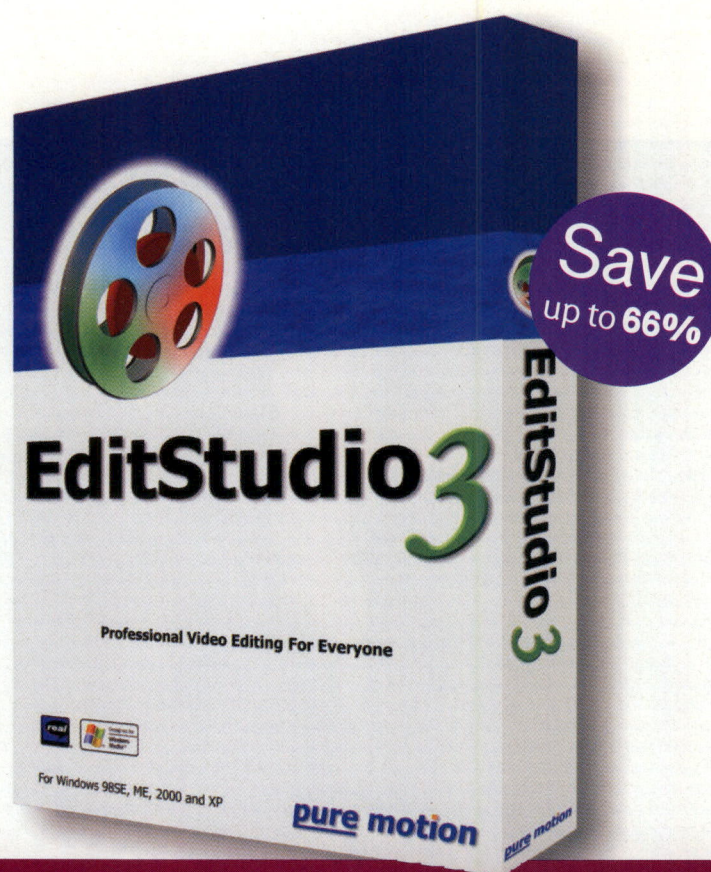
- 7 To work on Charge some more, drag it up to Untitled 3, select the other clips (as above), and drag them to the left until some of Fight slides beneath Charge. This layering works as a cut. Go to video filters, and drag Transition/Dissolve into a layer above these clips.



- 8 Right-click the Transition to set its Properties, and set the From and To layers to reflect the clips you're using. Drag the handles of the transition, if required, to cover the area that you want to cross fade.



- 9 From the File menu choose Build Movie, click each Next button until you reach Finish. When it's been exported, find your movie from wherever you saved it, and double-click on it to see the final result. **ca•s**



Upgrade *[EditStudio 3]*

Save £39 when you upgrade to the slick new version of *EditStudio* by Pure Motion...

Now that you've checked out all the basic editing tools provided in *EditStudio 1.5*, on our cover CD, it's time to push your video editing to new heights. *EditStudio 3* offers you just that opportunity.

Version 3 brings a myriad of improvements and enhancements. There's a new interface for quicker and easier use, a new storyboard editor and a new Media Exporter section. But that's just the beginning. The application now has an undockable preview window, integrated video capture options, including batch and

still capture. Perhaps best of all, there's now faster DV rendering to improve your workflow, and the ability to render out DV movies directly to a DV camcorder, eliminating the need to hold them on your hard disk.

A new audio levels meter makes sound correction more efficient, and the timeline tools now include marquee select and add/remove time. More QuickTime movie formats are now recognised by the program. Plus, if you need them, new features have been added to the preview display so that you can force the correct display aspect ratio, and create

action-safe and title-safe display areas to ensure important parts of your movies are always visible.

All this comes at an amazing saving. If you take advantage of this offer, Pure Motion will cut £39 off the full selling price. You can get the download version of *EditStudio 3* at just £20 (normally £59) or the boxed version sent to you for £40 (normally £79). **ca-s**



Prices include VAT and shipping where relevant. *EditStudio 3* requires a PII 350MHz, 64MB RAM, 4GB HD, Win98 SE/ME/2000/XP.

To order *EditStudio 3*, visit

[w] www.puremotion.com/computerarts

or call

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or fax

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To order you'll need your user ID, which is: **1082243620**



DGP

This Soho-based Facilities house has an equipment list most designers would give their eye teeth for. *"Our work is increasingly about people, not packages,"* reveals MD Mark Gardner...

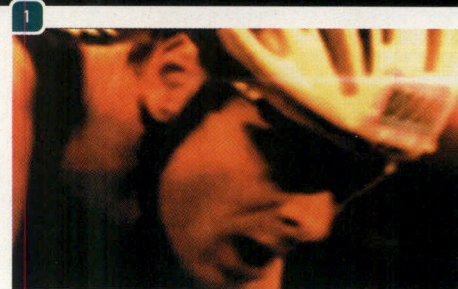
As with many post-production houses, the equipment mix at DGP reflects legacy-buying decisions as much as what's currently hot in the world of digital effects. "We started out with a single offline Avid system," explains co-founder and joint MD, Mark Gardner. "The first package we got in was *After Effects*." Five years on, DGP boasts eight Avid suites (five of which are online), two of Discreet's high-end compositing and finishing *flint* systems, as well as Discreet *smoke*. It still has *Affect Effects*, but turning jobs around quickly for clients ranging from the BBC and Sky to MTV, as well as the odd piece of movie work, means it's not in day-to-day use. "I asked one of our *flint* drivers what he uses *After Effects* for," Gardner says. "He looked at me and replied, 'Why would I use *Affect Effects*?' I guess it's a case of, why drive a Fiesta if you've got a Ferrari?"

Not that Gardner is disparaging of Adobe's software. "I think *Affect Effects* is a stunning package. With the

exception of 3D work, pretty much whatever you can do in *flint*, you can also do in *After Effects*," he confesses. "From our point of view, it doesn't render anything like fast enough. When you've got a client pointing at his watch, saying, 'This spot has got to be on air tomorrow', time becomes a big issue."

And this is one of the reasons DGP has a turnover of over £2.5 million a year — it meets the needs of its clients. "You have to remember that we are foremost a facilities house, not a post-production house," explains Gardner. Facilities houses exist to provide a range of services to a range clients, whereas post-production houses focus on specific jobs.

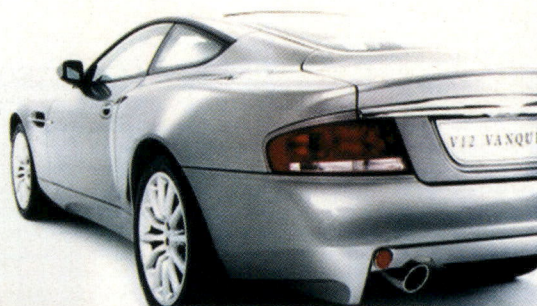
Most recently, DGP worked on the BBC's trailers for the London Marathon, the University boat race and the 11 Experience It promos for the Winter Olympics. Gardner's been heavily involved with the *Murder in Mind* series as well. "The next series won't begin shooting until September, but I'm meeting the





1. One of DGP's customers is BBC Sports, for which it recently completed the University boat race promo, which was offlined and conformed in Avid. The 11 promos for the Winter Olympics were offlined in Avid and conformed and finished in *smoke*. Other work includes the boxing promotion for Audley Harrison and the London Marathon. DGP has also undertaken ident work for BBC Knowledge.

2. Around a third of DGP work deals with corporate clients including the likes of Aston Martin and PricewaterhouseCoopers. "It's not always the most interesting work but it does exercise our designers' skills in terms of sometimes having to negotiate the clients' requirements with respect to those of the producer and director," says Mark Gardner. Other work includes commercials for companies such as Guinness and titles and sequences for MTV.



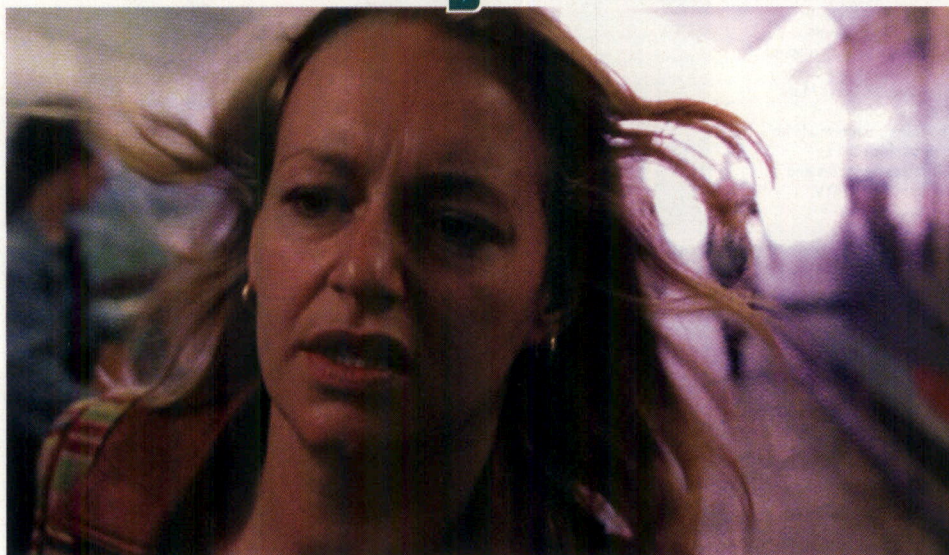
2



1. Shown at the end of 2000, DGP carried out the post-production work on *Swallow*, a three-part Channel 4 drama. The online edit and finishing was handled using *smoke*. The conform and small fixes were also completed on *smoke*.



1



Looking at the right screen

"Here's a tip straight from the heart of Soho," jokes Mark Gardner. "All our designers working for TV have a 14-inch telly and a monitor. You can see a line on a monitor that looks fine, but it might not show up on a TV. I'd recommend all designers working on *After Effects* and *Photoshop* for TV, get a TV card in their Mac or PC and get a cheap telly. It will save you a lot of time."

Apple of the eye

"If we were starting up a post-production house not running a facility, I think our initial purchase decision would be very different," says Mark Gardner, commenting on the rise of Apple's *Final Cut Pro*. "Obviously, there are certain foibles associated with it at the moment, but from what I've heard, the people who use it, love it. There are problems fitting it into the production process in terms of input and output, but I'm sure they will be sorted out with time. Then it will be a major competitor to Avid."

producer next week," he says. "We'll have lunch, but we'll be talking about anything that with hindsight we should have done quicker or better. The earlier we're involved, the more value for money we can deliver onto the screen." Gardner also acted as the post-production supervisor for the 2000 UK feature *Going Off Big Time*, which was cut by DGP's other co-founder Julian Day.

"From our point of view, we have to draw a larger circle around a package than its basic cost," Gardner continues. "We have to look at costs, such as our rent and our hourly staff costs. *After Effects* is cheap to buy, but on that wider basis it's not a profitable business strategy for us. We're doing two or three jobs a day, we can't afford to render things overnight." It's this sort of thinking which means DGP also has to invest in the expensive service packs offered by system vendors. It can't afford any downtime. Similarly, while its Avids are networked, they're not using the Unity-shared storage system. "We've heard so many horror stories because when one suite goes down, the whole system goes down. We're forever picking up work from people because their Unity's gone down," Gardner smiles.

As with so many things, it seems the fundamentals of post-production work boil down to that simple three-way equation: you can only have two out of cheap, fast and good. The third is mutually exclusive.

Playing with the big boys

Gardner is keen to point out that issues other than software or hardware can have a significant effect on a designer's quality of their work too. This is particularly

After After Effects

Designer Liam Corner made the jump from *After Effects* to *flint*...

"It took me about three months to get my head around the change from *After Effects* to *flint*. It was a tough learning curve," recalls Liam Corner, one of DGP's *flint* drivers. "It's a new perspective, you have to start again," he says. The structure of *After Effects* works by putting effects on the layers of nesting compositions, whereas *flint* is fundamentally different. "Effectively you have to compose your effects outside the composition module and then bring it back to the module," Liam Corner explains. "You can't just bring more footage in and try an effect to see what it looks like. It's a more thoughtful process."

Despite the power of Discreet's package, there is one thing Liam concedes *After Effects* does better: dealing with vector-based graphics. "We've worked out a way round this though, he says. "We take the *Illustrator* file into *Maya* — Alias|Wavefront's 3D package — and then covert it to an OBJ file. Then we can bring that into *flint* and scale it as much as we want." Another option is to use 5D's Spark plug-in, *Jaws*, although Liam says that it lacks the range of conversion parameters.

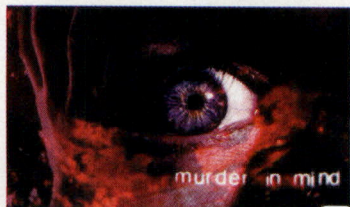
the case with the terrestrial broadcast channels. There are strict quality controls on what material can be broadcast, for example. "Some people seem to think their work is TV-quality, purely because they are editing uncompressed on *Final Cut Pro*," he warns. "But if you're not using a Grade 1 monitor and a scope, or a PPM (Peak Program Meter) and a decent set of speakers, then the work's not going to be broadcast standard. We don't get tapes rejected because we are very careful about things like colour tones, blanking and bars."

Several of DGP's smaller clients rely on it for this sort of service. "We have one guy who does a lot of promos for the Hindi market," says Gardner. "He does all his own work at home on *combustion* but pops into an Avid suite to lay it off. That's his market and budget and he's happy; it works for him and for us too. There's room for everyone."

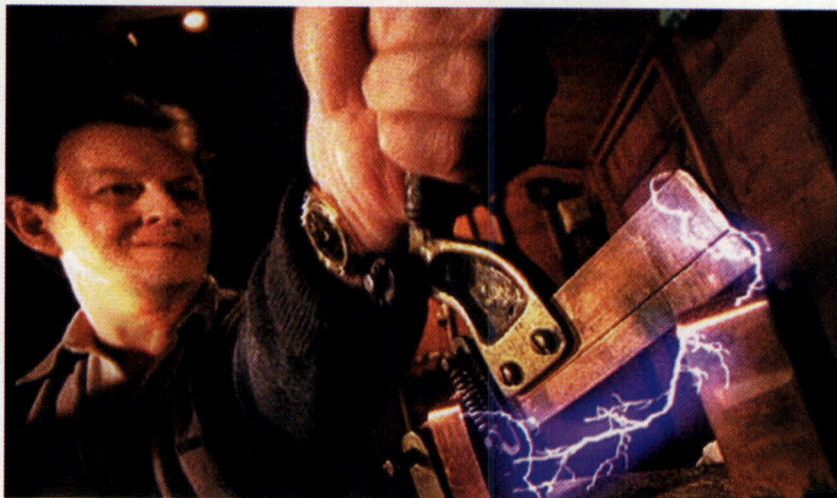
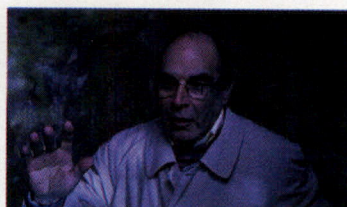
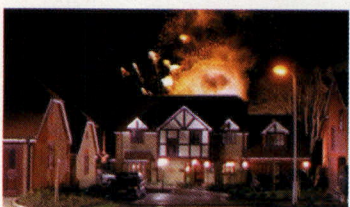
Indeed, as the market fragments, Gardner reckons the work of the post-production houses and facilities is less about what kit they've got. "You can buy or hire the equipment and learn how to use it," he says. "What it all comes down to is the experience of the people driving it. People need to look at their skillsets and realise the more they develop them and understand different processes, the more useful they are going to be. That applies as much to our staff as it does to the guy using *After Effects* in his garage." **ca-s**



You can view some of DGP's work at www.dgpsoho.co.uk. There is also a showreel of DGP's work in the Movies section of the cover CD.



2



We're forever picking up work from people because their Unity's gone down

2. "Sometimes we're just adding more blood to a stabbing scene or removing wires or painting out mistakes in film," says Mark Gardner, with respect to the BBC drama series *Murder in Mind*. DGP will be involved in the second series, which starts filming in September.

3. Shot on the Sony DVW790 DigiBeta camera, the two feature-length episodes of the Sky One drama *The Stretch* was graded and field merged at DGP using *smoke*. Film grain was then added at the end.



3

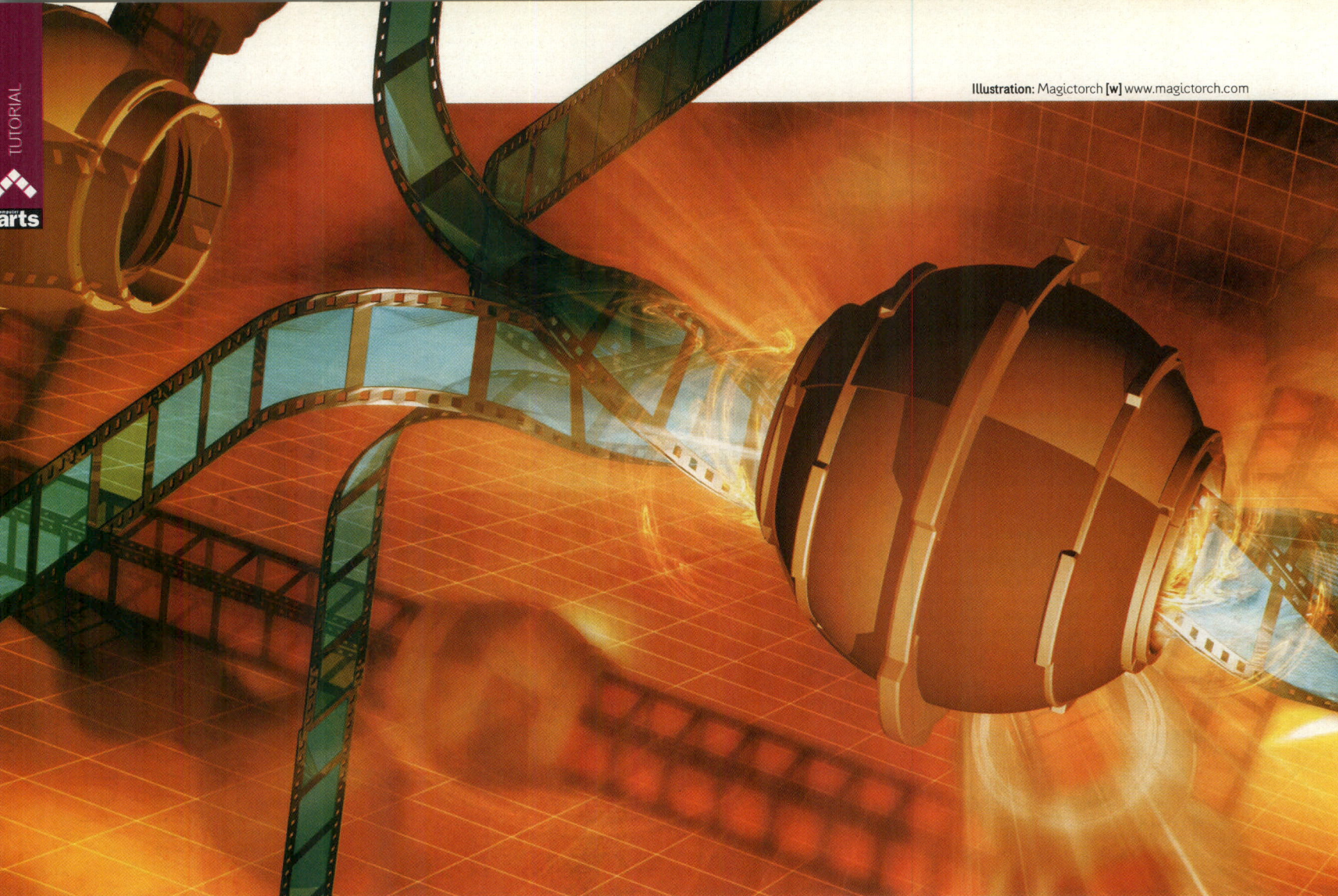


Illustration: Magictorch [w] www.magictorch.com

Colour correction

After Effects 5.5, combustion 2 and Final Cut Pro 3 all provide powerful tools for colour-correcting video footage. We show you how to create a new look for your creations...

Colour correction tools are often ignored by beginners, because intuitive fiddling often brings about useless results. It doesn't take much practice, however, to see that these are the most essential tools in your editing package.

In this tutorial we will look at the three big packages: *Final Cut Pro 3*, *combustion 2* and *After Effects 5.5*. In our example clip, the actress looks blue and underexposed. We will turn the whole scene to daylight, then restore darkness to the scenery while keeping a warm light on her face.

No matter how carefully you shoot, the light changes from shot to shot. To the eye, things shot on location look the same, but the camera sees it differently. Colour correction means viewers will believe it was all shot at the same time.

Sometimes, of course, accidents happen. You forget to set the white balance, get the exposure wrong or, as with our sample footage, you shoot in near darkness. Colour correction can cure these problems. You can even select a single coloured object like a shirt, car or wall and change its colour without affecting anything else. ►



Christopher Kenworthy is the author of *The Quality of Light*, and recently won the Grass Roots Film Festival 2002 for his short science fiction film *DREAMER*. Email at [e] christopherkenworthy@hotmail.com.



Files on disc

In the Tutorial\Colour folder on the CD, you can find the original, untouched image (*Actress.mov*), which is underexposed with bad colouring for you to work from, and the final image (*ActFinal.mov*) that has been colour corrected. You can also find demo versions of Adobe *After Effects 5.5* and *combustion 2*.

Part 1: Colour correction in After Effects 5.5

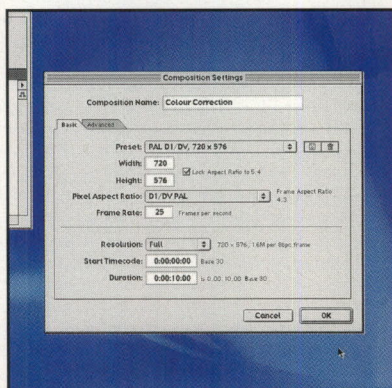
Using the *After Effects* filters, you can control the colours of your clips. You can find a demo of *After Effects 5.5* on the cover CD...

Black, White, Mid

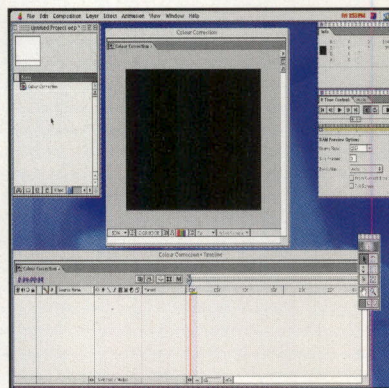
Colour correction software gives you the impression that when you alter the blacks in an image, you're only changing the blacks. In truth, this will affect about 75 per cent of the image, with the brightest being 25 per cent less affected. When you play with the Mids, then the Blacks and Whites are less affected, but still changed slightly. White adjustments still affect dark colours, but not the bottom 25 per cent of shadow.

Colour throb

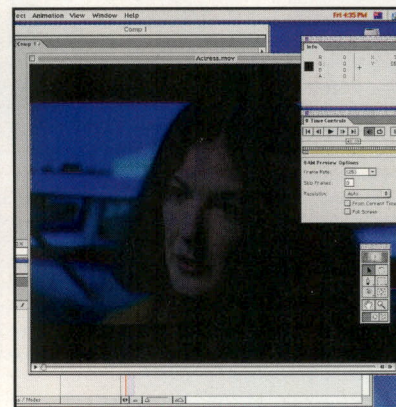
Once you have isolated a colour with Change Colour, you can keyframe its changes over time. So you can set the sky to blue at the beginning of a clip, then set a keyframe to yellow at the end. If the clip is long enough, this would look like a sunrise. Or you can make quick changes, to make colours throb. Making a person's shirt change colour, while everything else is normal, is an old favourite.



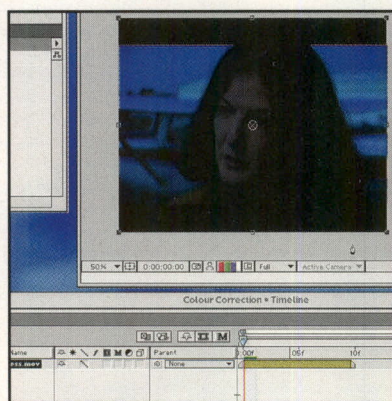
1 From the Composition menu choose New. Name your clip Colour Corrector, and choose the preset PAL D1/DV 720x576, with a frame rate of 25, at Full Resolution. The duration should be one second (or 25 frames).



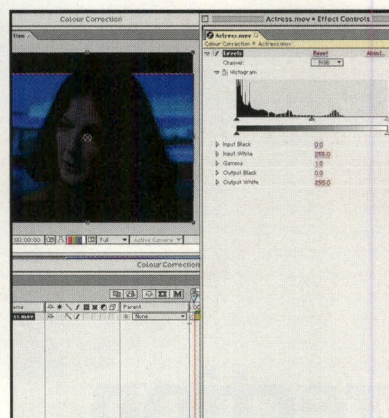
2 On the bottom left of the main Composition window, change 100 per cent to 5 per cent (unless you have a very large screen). Then resize the window to fit by dragging the bottom right-hand corner.



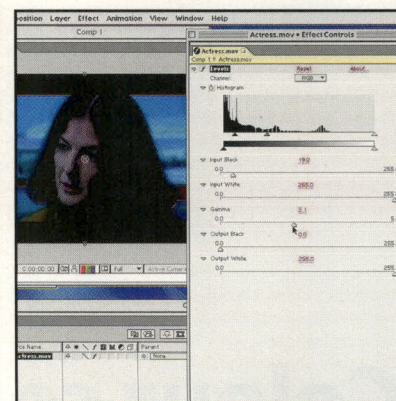
3 Go to File>Import File, and navigate through the CD to the Actress.mov clip. It will appear in the window on the left, next to your newly-created Composition. Double-click it to play the movie.



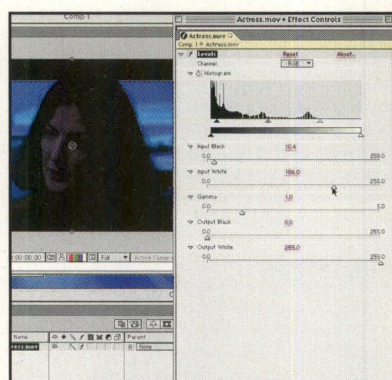
4 Drag the Actress.mov file to the Composition window and close the movie. Diagonal lines will appear over the black space. When the lines snap to the edge of the window, release the footage. Your clip has also appeared in the Timeline.



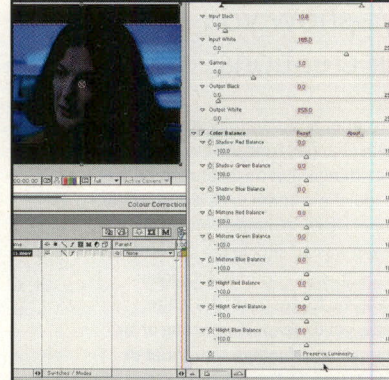
5 Go to the Effects menu and choose Adjust>Levels. The Effects window appears. To be able to see your clip and to use the effects, shuffle your windows around as shown.



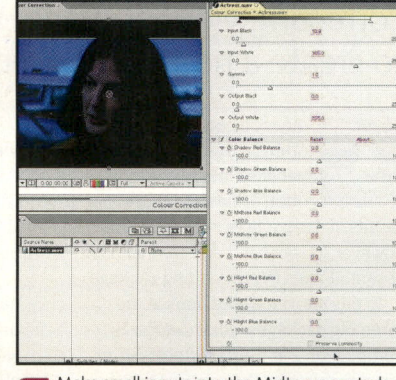
6 The sliders in this filter enable you to see exactly how Input, Output and Gamma affect the Histogram. You get to see how the levels alter the peaks of colour and light in the image. Experiment and then reset.



7 With experience you will learn to read these peaks, and see where adjustments are required. For now, set the Input to 10.8, and the White to 185. Study the Histograms to see where these inputs fall and see how they affect the image.



8 Go to Effects>Adjust and choose Colour Balance. Leave the Preserve Luminosity box unchecked. As this clip is underexposed we want our changes to affect the brightness. Later, you can check the box to see what effect it can have.



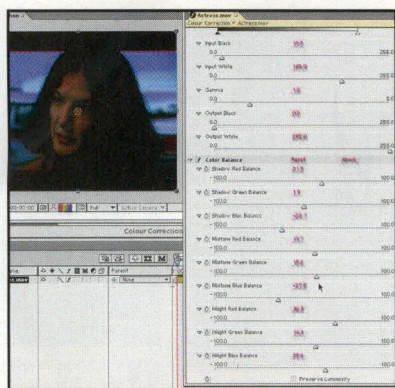
9 Make small inputs into the Midtones controls. You'll find that Red and Green work well when close to each other, and that blue is the culprit that you need to get rid of. Be wary of making huge changes – imagine that you are seeing the image for the first time.

Master clip

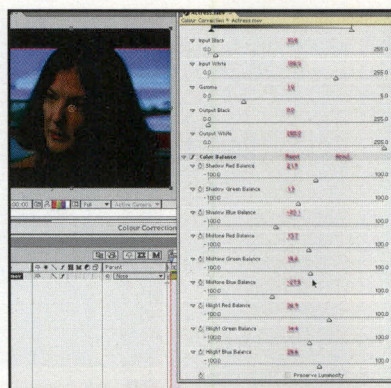
When colour correcting, you should choose the master shot from your scene, and correct that first. Then, apply similar corrections to other clips to bring them in line. Concentrate on skin tones initially, as well as at the end, otherwise your creative flair may have made skin and lips go peculiar colours.

The look

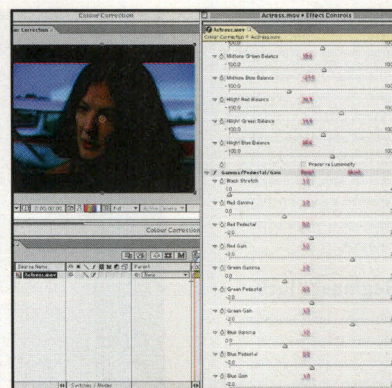
There's more to colour correction than rectifying mistakes. Every feature film you watch has been extensively graded – a chemical process that alters the colours. In this way scenes are matched but, more importantly, a film is given a look. Think of *Apocalypse Now Redux* or *The Shipping News*, for recent examples of overt colour control to create a look and atmosphere.



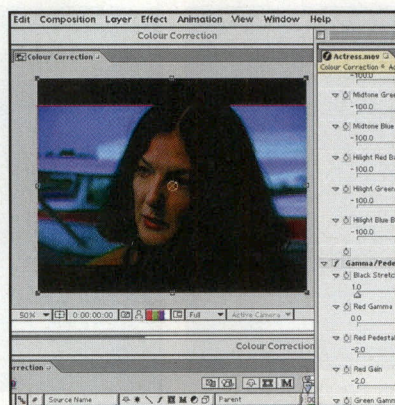
10 Now adjust the Shadows in the same way. You will probably find that good effects are achieved by building the red up. Remember that you are aiming for good skin tones and worrying about the background later.



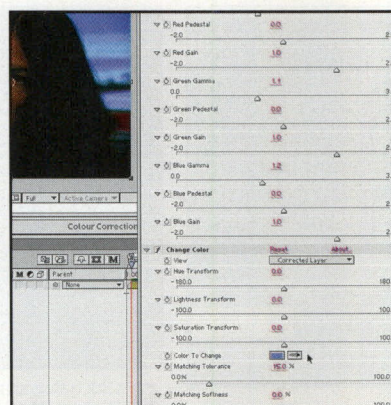
11 Finish with the Highlights, enabling some blue back into the face if required. These adjustments should enable you to make the face look artificially lit, while keeping the twilight look to the background.



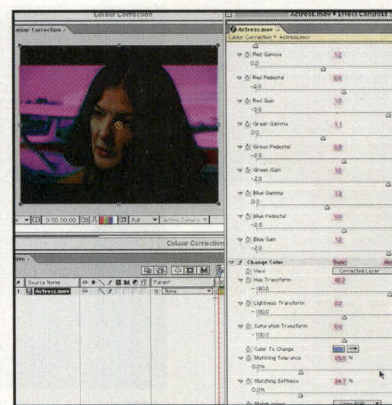
12 Go to Effects, and choose Images>Gamma>Pedestal>Gain. This tool offers you a different approach to a similar problem. Pedestal affects all colours, and should probably not be used in this example. Experiment and then reset.



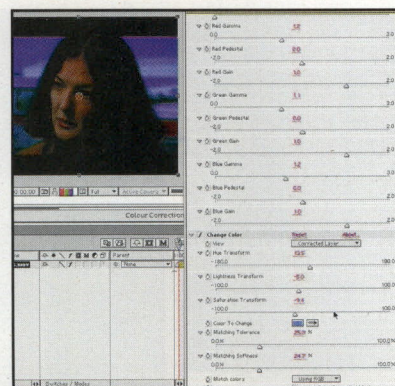
13 Now that you are familiar with the controls, use them to fine-tune the skin tones as required. Only slight adjustments will be required. Look away, then back at the image, to see how it looks at first glance.



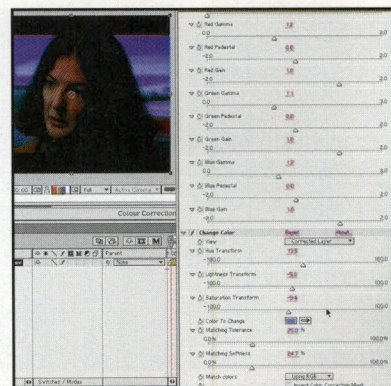
14 To correct the sky, and make it look like the original, choose Effects>Image Control and Change Colour. Use the eye-dropper to select the bluest part of the sky.



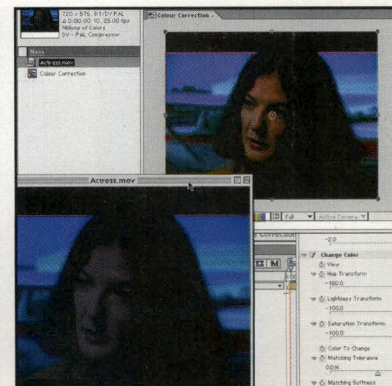
15 Turn the Hue right up to 90 so that the sky is an unnatural colour. This enables you to see where the filter is having an effect. At present it should only be on patches of sky, some of the plane, but none of her face.



16 Experiment with the Matching Tolerance and Softening tools to expand and smooth the area of colour that is affected. Make sure her face remains untouched, but allow the edge of her jacket and hair to blend with the sky.



17 Now reset the Hue to the centre or, if you prefer choose a slightly bluer look, bring the lightness down and increase the saturation as required. Her face will remain unaffected, as you change the background.



18 Double-click the Actress.Mov in the top left-hand corner to see the changes you've made. If the sky isn't right, use this for comparison to make your final adjustments. ►

Part 2: Colour correction in combustion 2

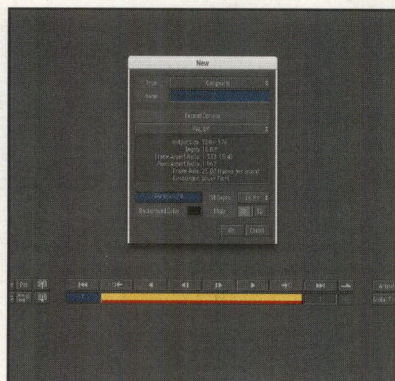
The levels of control in *combustion 2* may seem overwhelming at first, but some hands-on practice soon gives you the required skills. You can use the demo on our CD...

The squint test

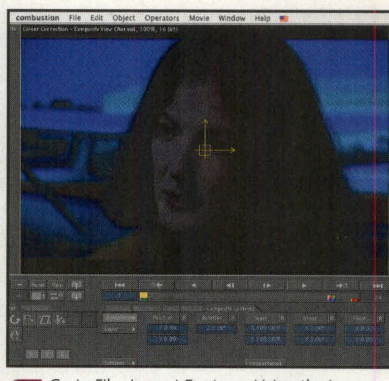
When looking at an image, or comparing it to another, try squinting or blurring your eyes. This stops you being distracted by faces and images, and makes you simply look at colour and contrast. Also, look away from time to time and come back to the image, so you're getting a fresh look.

Beginner's luck

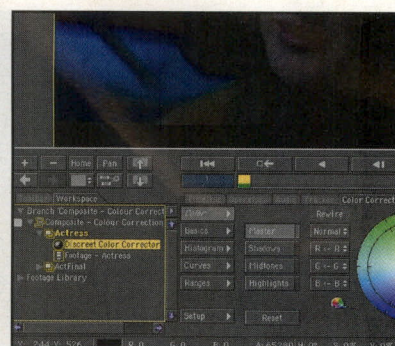
Beginners tend to reach for Equalize, Brightness and Contrast and then turn the Saturation up. These adjustments can make a flat image look impressive onscreen, but the values may become illegal for broadcast. Although they offer the appearance of an improved image they often simply make it more saturated. Instead, imagine the look you want, and aim to create it with colour correction. Over saturation doesn't always look the best.



1 Select New from the File menu to start a fresh project. In the dialog box select Composite, set for PAL DV, a duration of 24 (frames), and a bit depth of 16. Click 2D to cut down rendering time and press OK.



2 Go to File>Import Footage. Using the icons on the left of the screen, navigate to the footage files in the Tutorial\Colour folder on the CD. Command/Ctrl-click first ActFinal.mov then Actress.mov and OK. This should import the previously-corrected footage beneath Actress.mov.



3 Click the Workspace tab to make sure the workspace is visible (bottom left). Actress.mov should be higher than ActFinal.mov. If not, drag it up the list. Select Actress.mov by double-clicking – the blue footage should now be visible. Go to the Operators menu and choose Colour Correction>Discreet Colour Corrector.



4 Assume that ActFinal.mov was shot correctly, and use it for comparison. On the bottom-right find Compare, select Operator, and choose ActFinal.mov from the menu. Press the A/B button, then choose Split Vertically from the menu on the left. Click on the actress' nose to create the split.



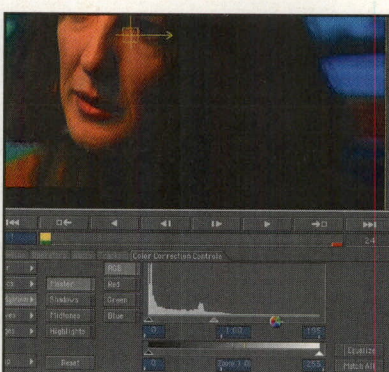
5 Click Histograms, and click through Master, Shadows, Midtones and Highlights, selecting RGB, Red, Green and Blue for each. Histogram graphs appear, showing distribution of light and colour. In our footage, the peaks are to the left showing underexposure. This won't mean much now, but will make sense as the image changes.



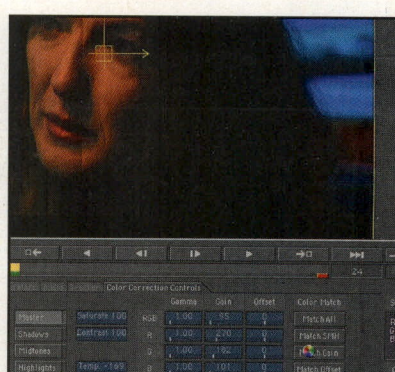
6 To begin comparing our footage with the background footage, select Basics. On the right are two eye-droppers, one for Source and one for Back. Use the Source eye-dropper to select the blue side of the image and click on her cheek. With the Back eye-dropper, select her cheek on the right.



7 In the Colour Match column, click Match Gain. In practice, you can try the other Match buttons, attempting to find the closest look as a starting point for your correction. In this case, Match Gain gives an overall feel of brightness and colour that is close to the result that we want.



8 To set Input levels, click Histograms>Master>RGB. Use the source eye-dropper to select the darkest black. A yellow line appears in the histogram. Drag the black triangle on the higher line to the level of the yellow line. Repeat for white, dragging the white triangle to the yellow line.



9 Click Basics and Select Master to begin altering the colours. You can see that Gain has already been altered. Experiment with changing the values of Gamma, Gain and Offset for each colour. Change the number by click-dragging on the box.

Preview time

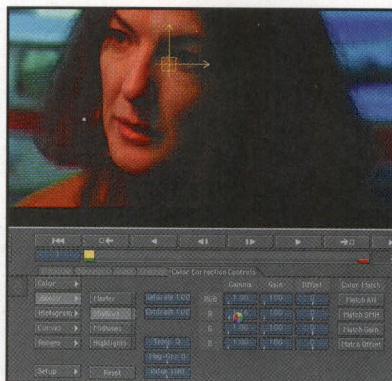
Rendering should generally be avoided until you're getting close to your desired result. Then it is a good idea to render the whole clip and watch it in real-time. You may find sudden shifts in light cause unwanted effects which need to be dialled out. If possible, use a video monitor or a TV at least, as your computer screen gives a poor impression of video colours.

Histograms

It's tempting to ignore Histograms, but if you own the full product it's worth spending time with the manuals and experimenting for yourself. The Histogram is a tool that shows you where the colour lies and how intense it is. By moving the top line — the input sliders — you clip all colours below or above a certain level. So, you can add contrast by playing with Input. An over-contrast image should have the Output levels clipped. To make sense of all this, load up some clips and fiddle with the sliders.

Colour wheels

It's tempting to use colour wheels and forget about numerical controls, as you can see what you're doing. In fact, it's worth getting used to the numbers. If you go to the colour wheel and change the master controls you'll see it's a brutal tool. Numerical inputs can be accurate, subtle and give you a level of control that often goes out of the window when you start spinning a colour wheel.



10 Repeat the process for Shadows. You'll notice that Offset changes the whole image, whereas Gamma changes the Midtones without affecting the shadows and highlights. Gain tends to change the colours in the brighter areas of the image.



11 Repeat the process for Midtones. You'll find that small numerical shifts are usually better. If you notice a lot of green or blue appearing in her face, then things are going wrong. Aim for subtle correction.



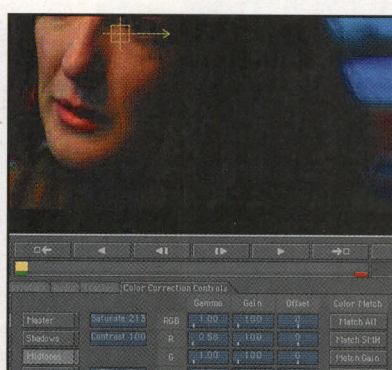
12 Finally, adjust the Gamma, Gain and Offset for the Highlights. Remember that you are concentrating on getting the skin tones in her face to match the skin tones in the corrected image. Don't worry about the background becoming the wrong blue. We can now move on to correct this.



13 Click Colours>Midtones and click-drag the outside ring of the colour wheel. You'll notice that the background changes without affecting the face much. This is true for Highlights and Shadows as well, but works best with Midtones. To get the correct blue background, a Hue Shift of about 20 is best. Also, drag the Saturation up to 213.



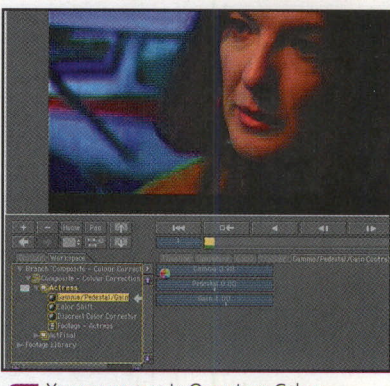
14 This saturation increase has made her face too red, so you should go back to Basic and play with the Master Gamma and Gain for a more natural skin tone.



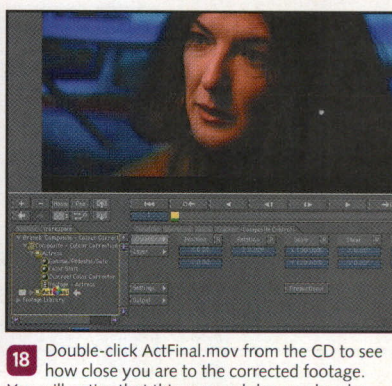
15 If her lips are still too red with the colour bleeding into the surrounds, select Highlights and reduce the Red Gamma and Gain. When reducing red, ensure that it's done in balance with the other colours to keep skin tones natural.



16 Go to Operators>Colour Correction and choose Colour Shift. In the panel that appears, play with the Cyan. By shifting Hue by 10 and reducing Lightness by -41, you will get an accurate sky colour.



17 You can now go to Operators>Colour Correction and choose Gamma>Pedestal Gain, and use these tools to make some final tweaks. Small numerical shifts will make a big difference, so use with caution. Your experiments so far will help you decide what works for this image.



18 Double-click ActFinal.mov from the CD to see how close you are to the corrected footage. You will notice that this approach has rendered a slightly pink, but still natural look. It is, of course, possible to go back and achieve a more yellow look. Or, you can decide the pinker colour is a much better look, and then you can apply this to all of your clips. ►

Part 3: Colour correction in Final Cut Pro 3

Final Cut Pro contains a new set of colour correction tools, enabling intuitive control over the entire image...

Art and science

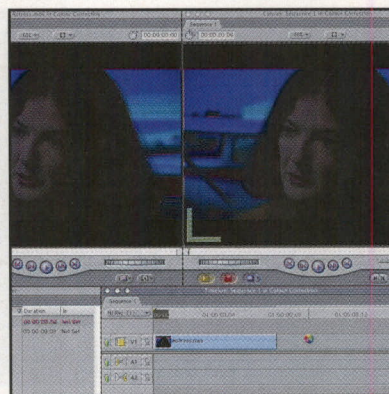
Even computer manuals say that colour correction is more of an art than a science. Despite this, some tutorials simply tell you which numbers to enter. We've kept that to a minimum, letting you learn to feel your way into colour correction. Results may take time to come, but learning how to read colour is far more important than knowing the software.

No limits

When limiting the range of an effect in *Final Cut Pro*, you have many options. In our example, the tiny amount of yellow light on the actress' face differentiates her from the background. Luma would not work well, as her face is the same darkness as much of the background. Sometimes, of course, Luma works well. Study each clip, determine what needs to change, and experiment with different limit effects.



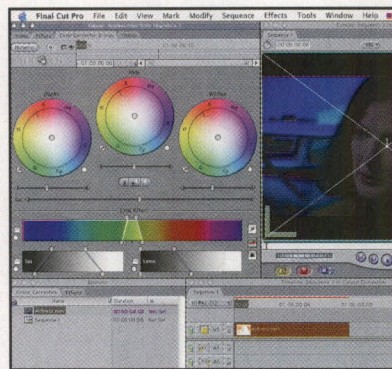
1 From the File menu create a New Project. From the Edit menu select Import, and find the clip *Actress.mov* on the CD in the Tutorial\Colour folder. When you see it in *Final Cut Pro's* browser, double-click it to make it appear in the Viewer.



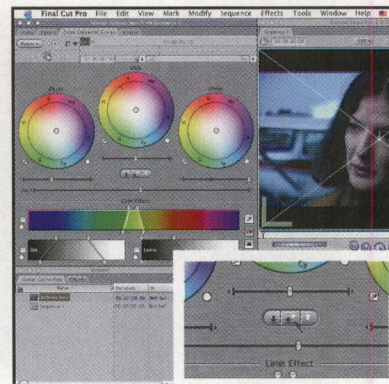
2 Drag the clip onto the Timeline. No sound was included, so it won't appear. Select the clip in the Timeline, which will turn it brown. The image should appear in the Canvas, with diagonal crosshairs to show that it is active.



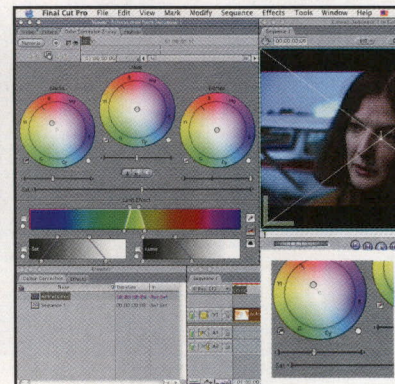
3 Go to the Effects menu. In Video Filters, find the Colour Correction sub-menu and select Colour Corrector 3-way. Your clip now has a red line across the top, indicating that rendering is required before the clip can be played. Instead, work with one frame and render at the end.



4 Double-click your clip again to make it active in the Viewer, otherwise you will be working on the browser's unfiltered version of the clip. You will notice that a Colour Corrector 3-way tab appears above the image. Click this to see the colour correction wheels.



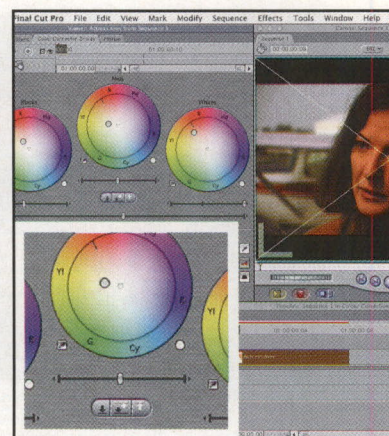
5 Click the Auto-Contrast button – it's the central button underneath the middle colour wheel. This sets your darkest colour to black and your lightest colour to white, which is a good starting point for correction.



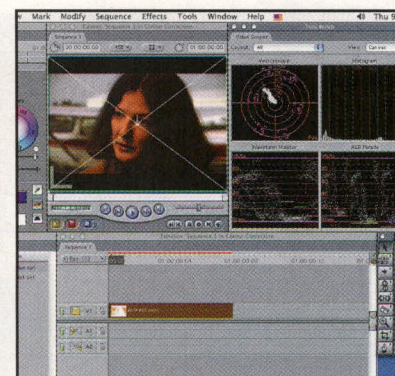
6 Select the eye-dropper by the Blacks wheel, then go to the image in the Canvas and click on the part of the image that should be black. Avoid her hair, as this contains some yellow light. Try the aeroplane strut or the darkness on the horizon.



7 Now go to the Whites wheel, select the eye-dropper and pick part of the image that should be white. The aeroplane body, although blue here, is white in daylight, so use this. The software now sets this colour to white, changing the image dramatically.



8 To set the Mids, use the middle eye-dropper, and find an area of neutral grey – perhaps the clouds in the top-right corner.



9 From Window, choose Arrange, and select Three Up. These scopes show how the colour is distributed. Skin tones for any race fall around the Vectorscope line that points up to the left. Your adjustments should aim to make the peak readings fall along this line.

Black and white

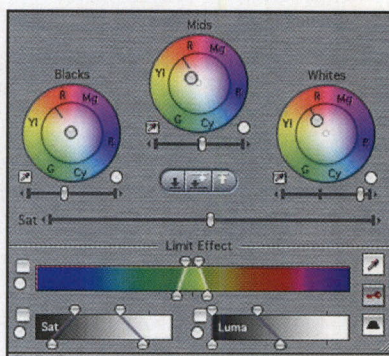
When using the eye-dropper in conjunction with the Inputs, it's important that you choose areas of the image that are truly black and white. That is, they would be black in the correct lighting conditions. For black, avoid her hair, as this is slightly yellow, and would be brown if well lit. For white, however, you can click on the blue aeroplane hull, as it should be white. Don't choose light sources or reflections for white, but well-lit objects.

Vectoring in

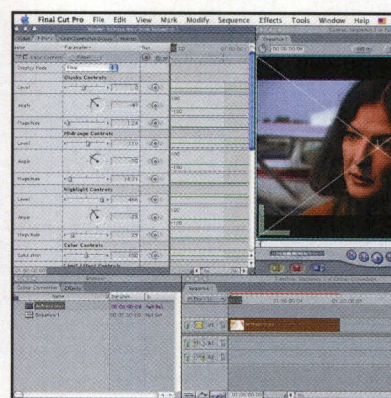
Nobody wants to look at the Vectorscope when they can look at the image itself. This is a mistake, as the Vectorscope offers pure information that is unhindered by the look of the image. For setting skin tones, it can be invaluable. If it still looks unintelligible to you, superimpose a colour wheel over the scope, and you'll get an idea of what the peaks are representing. Change your image and see what happens in the Vectorscope. You'll soon come to rely on it.



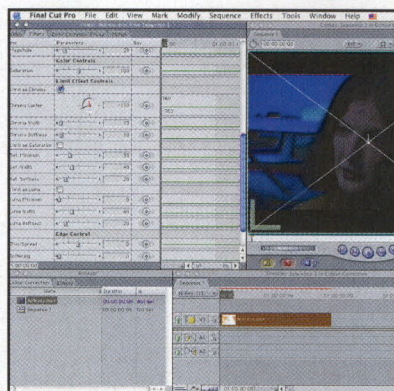
10 With one eye on the Vectorscope, click on the moveable button in the Blacks wheel and adjust the colour by dragging in the direction of your chosen colour. Repeat for Mids and Whites.



11 Although small adjustments are usually best, you can hold down the Command/Ctrl key to make larger adjustments as you drag. Avoid the temptation to dramatically change the colours. Aim for natural skin tones and check these in the Vectorscope; the wiggly white lines should cluster around the skin tone line.



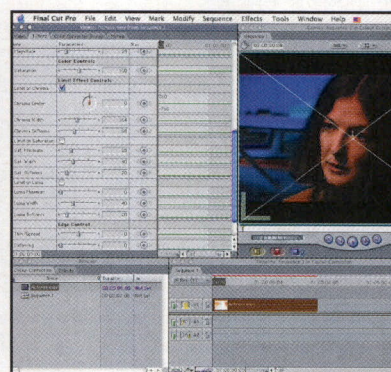
12 For a closer look go to Window>Arrange and select Standard. In the Colour Corrector click on the Numeric button. This displays the same controls numerically, which can be useful for the fine-tuning stage.



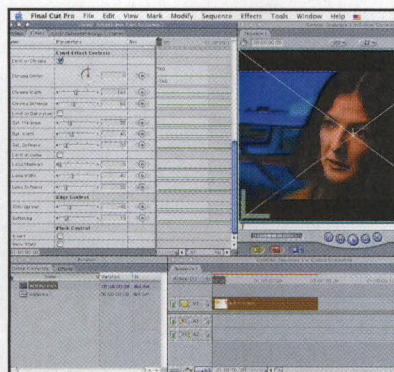
13 To limit the effect of the Corrector, so that only her face is corrected (leaving the sky untouched), check the Limit on Chroma box. You can also choose limit by Luma or Saturation, depending on the nature of the clip.



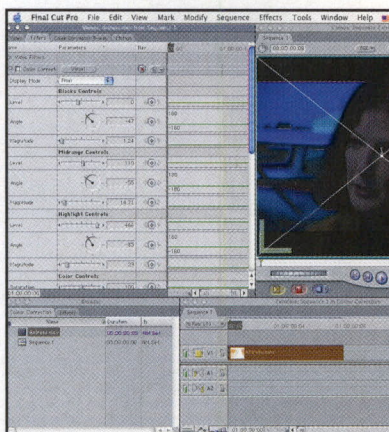
14 Adjust the Chroma Width and Softness until you see the changes affecting her face, but not the background. It will still look rough and inaccurate at this point. Change the settings to 164 for Width and 68 for Softness.



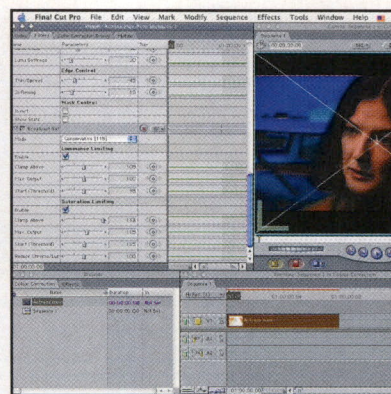
15 Now rotate the Chroma Angle until it is working only on the colour you want. In this case, the best angle happens to be zero. In practice you may need to juggle back and forth between the angle, width and softness in order to obtain the required separation.



16 For a finishing touch adjust the Edge Controls, which affect how hard the line is between affected and unaffected areas. Sometimes it's good to let the background leak onto the foreground for more realism. In this case, settings of -45 for Thinning and 9 for Softness work best.



17 Switch off the filter by unchecking the small box at the top to see how much of a change you have made to this clip.



18 From the Filters menu, select Colour Correction and choose Broadcast Legal. If your changes have pushed colour or brightness into illegal values, this filter is an instant way of taking the levels to legal. **Caution**

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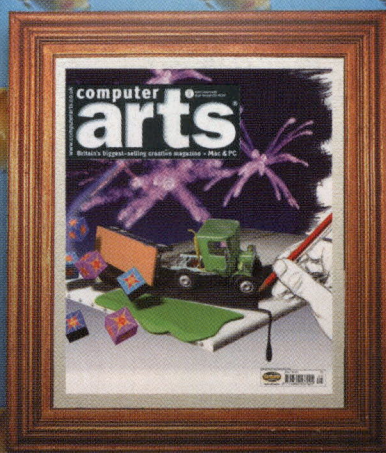
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Stop motion animation with DV

"I couldn't do normal animation because I can't draw. I couldn't do live action because I can't act. That's why I did stop motion," says Adam Surplice, amateur film maker...

Write about what you know. It's the maxim of creative writing courses the world over. And it's pretty much the same one followed by Adam Surplice, except instead of just writing about what he knew, he made a stop motion DV film about it. Adam is the 27-year-old Australian behind *Waitangi Street: Matt's Dinner*, starring puppet versions of Adam and his friends. It was made in a garage using handmade puppets, a Panasonic DV camcorder, a desktop PC, *Premiere* and various other bits of sundry software. The film is a great example of a visual film making style that's both fun to create (if you're dedicated) and easy to do using a desktop video kit (if you're patient) with a touch of ingenuity. You can watch the movie now in the Tutorial\Stop Motion folder on the CD.

Rather than starting with a story board and script, Adam began with the soundtrack and his main characters. The reason for this was simple: the film has

a strong musical theme, with all the main characters being members of a band. He used the music composition and sound editing software *Cakewalk 9.0* to record the movie's theme song.

The next step was to develop the story and refine it down to a script. The characters were based on Adam himself and three former housemates from his university days. After writing the script, they recorded their parts over just one weekend. One of the characters wasn't there, but that didn't hold up proceedings — he just did his recording and emailed the audio back to Adam.

Bringing it all together

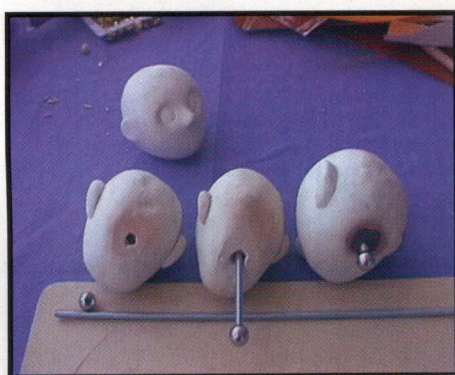
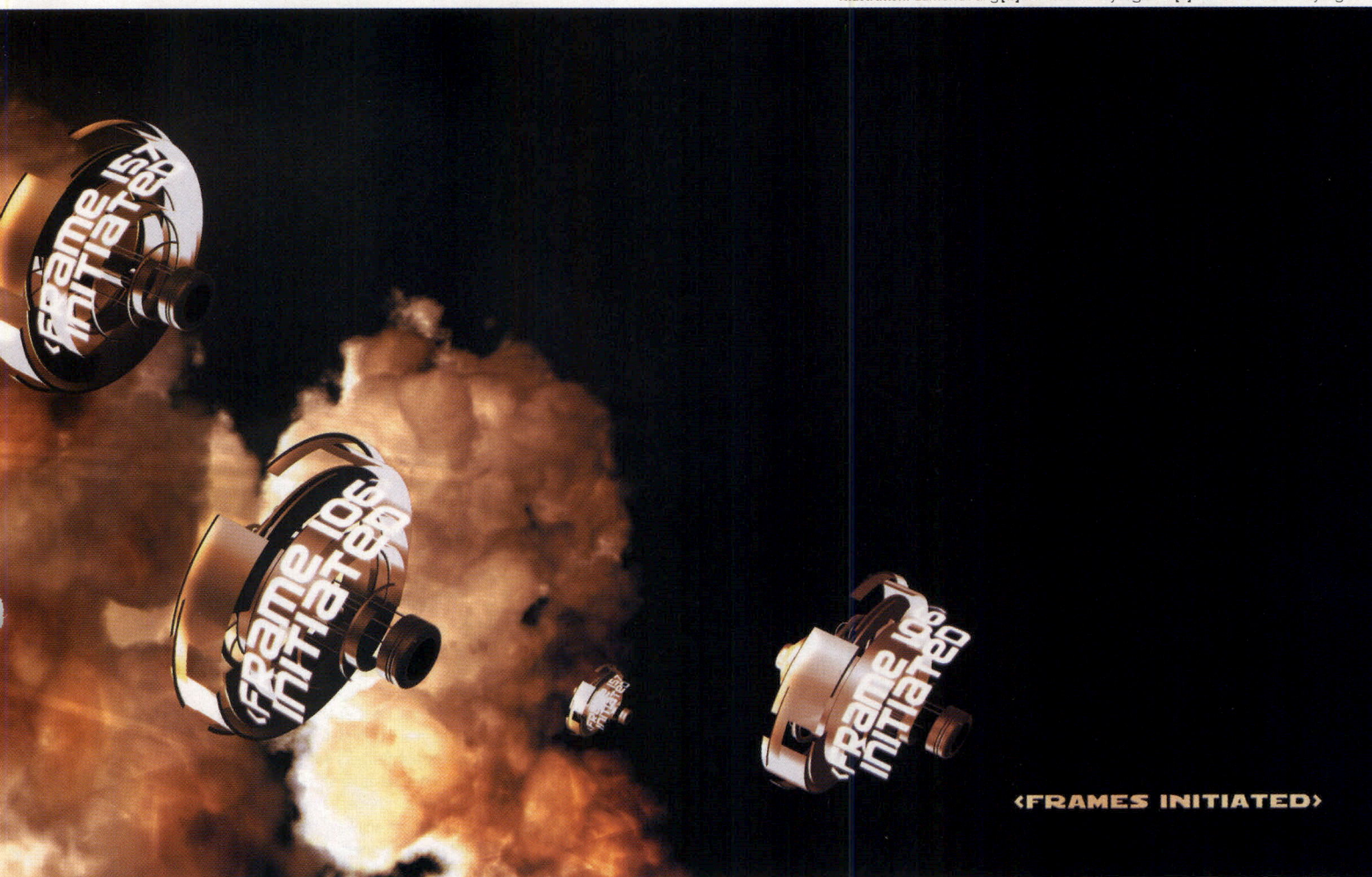
With the music and soundtrack nailed down, the next step was to develop an exposure sheet incorporating the key audio elements of the project so that they could be associated with actual shots in the film.

According to Adam, it's virtually impossible to make a film without a basic exposure sheet. "It gives you an overall view of the entire shot and lets you plan what each character is doing or saying or what their movements are," he says.

He exported an image of his soundtrack from *Cakewalk* into an *Excel* spreadsheet. Adam then added any extra information like the frame number, which character was speaking, and the status of the other characters in the piece. "If I was distracted, I could come back to the exposure sheet, see where they were meant to be and where they were going to be for the next shot. I also left a column for special instructions," he says.

"Before you start each shot, know what's going to happen. If you're animating more than one character, or more than one element — say, for example, your character is talking and their hands are gesturing — it's surprising how easy it is to lose track of both hands.

Illustration: Edmond Yang [w] www.edmondyang.com [e] edmond@edmondyang.com



Solid heads were too heavy for the models. Sculpey, a bakeable clay, was moulded around a foam ball which shrivelled when baked, leaving a hard empty shell.

You really need to draw or write down what everything's doing. If you lose track half way through the shot, you're stuffed."

Lip synching

The next stage of Adam's the film making process was to do all of the background work on the lip synching that would be required for all the dialogue.

Puppet and set construction

Filming stop motion requires special planning - one bump can spell disaster...

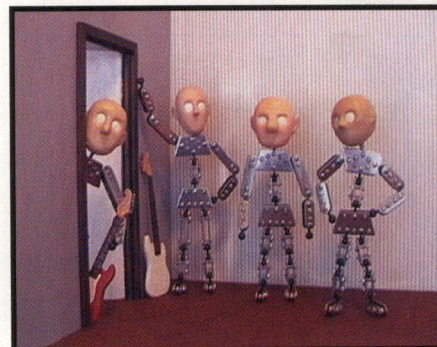
"You should aim to be able to pick the set up, turn it upside down, and have nothing fall off. If there is something loose, you will bump it," Adam says. "To do one three-second shot, you've got to reach across the set 40 times. You're likely to bump things, so the more you glue and screw down, the easier you make it on yourself."

As for the characters, each frame meant adjusting each puppet in tiny, painstaking movements. The armatures needed to be strong enough to support themselves, their clay heads and clothes, as well as durable enough to withstand hours of intensive handling.

With this in mind, Adam ordered AUS\$600 worth of ball-and-socket armatures from Armaverse. He says they were the only prefabricated, commercially available armatures he could find.

"The advantage of ball-and-socket armatures is that you can bend them infinitely and they won't break. They maintain the right amount of tension all the time," Adam says. He

concedes that while Armaverse armatures aren't perfect, they are easy to assemble and are a cost effective alternative to having puppets purpose-built.



While simple hand-made wire armatures would have sufficed, Armaverse armatures gave Adam more control over what the final product looked like.

Although the puppets were yet to be built, Adam found a piece of software called *Magpie* that could help with the lip synching process. The software produces basic mouth shapes that correspond with the voices of the characters that are recorded for the soundtrack. The mouth shapes appear in a little puppet window in the corner of the screen.

Each character had nine different mouth shapes, as set up in the software. Nine was a nice compromise. To do it properly, you could have up to 30 different mouths. Or if you were doing it very simply you can reduce things to open or closed mouths. Using *Magpie*, Adam mapped out what was happening with the mouths for every bit of speech.

Story and concept

Inspiration can come from many places, but sometimes it's right under your nose...

The original inspiration for *Waitangi Street: Matt's Dinner* was Australia's Tropfest film festival. Adam Surplice and his friends had discussed entering in the past but never actually got round to doing it. Adam decided to make a stop motion film that was based on himself and some of his friends, who were all former band members.

"The first time I thought of doing an animation for Tropfest was when everyone kept talking about it and never actually doing it. Trying to get actors together for a live action film would never have happened. So, instead I thought about doing a video," Adam says.

"Originally, I thought of doing a video with stop motion mixed in with live action of the band doing the same thing, as a video clip idea. I decided to turn it into a Tropfest movie because otherwise, no-one would ever see it.

"It was always going to be about the band. It was always going to be based in Waitangi Street, which is the house that my friends Matt and Dalle and Fiona lived in when I joined the band. It was always going to be everyone playing a drinking game or something," Adam says.



Drinking games were always part of Adam's story concept. Mindful of trademark law, Adam sought and was granted permission to use the VB beer label.

Adam then planned the direction. He chose a simple sitcom approach, where the camera focuses on whichever character is talking.

Building the set, puppets and props

The most time-consuming task in creating *Waitangi Street: Matt's Dinner* was building the set, and creating dozens of props and the four main puppets. "I had to construct the set, the models, all the mouths and the armatures — which are the skeletons inside the puppets. It doesn't seem like as big a job because it happened over a period of probably six months from start to finish — part time. But I guess more man-hours went into that than the final two weeks of animating."

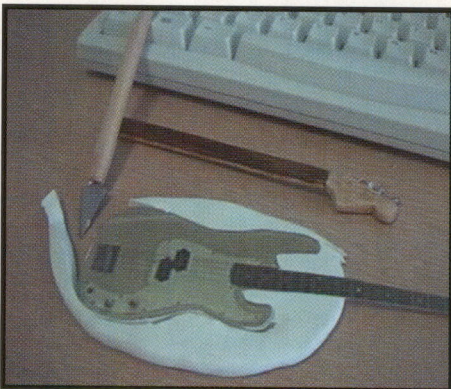
Housed in a garage, the 2m wide set, supported by a raised, wooden platform stood approximately 1.5m high and depicted the lounge and music rooms of the Waitangi Street house. Furnishing the place with mini chairs, tables, a bookshelf, a computer and computer table, shot glasses and a complete drum kit and electric guitars, Adam was meticulous in his design.

The four 20cm tall puppets were then brought to life. Built on special metal ball-and-socket structures imported from the United States, Adam created their heads with a hard-baked clay called Sculpey. Facial features were created with standard Plasticine, while hands were made with flexible Fimo (Super Flex). He dressed the puppets in handmade mini leather jackets and cargo pants. There are many difficulties in filming on a miniature scale. "Practically, the hardest thing was having to build everything. If you're doing a live action film, you're surrounded by props. I had to make every single thing that was going to appear in this movie."

Animating: filming and editing

With the soundtrack and speech complete, and the set finally built, Adam was able to start animating — that is, filming with the lights on and DV camera rolling, as he painstakingly moved each character into position for each frame (a single shot). Based on the mouth shapes derived from *Magpie*, he could make the characters talk as they were shot using the Panasonic camera, connected to a DV card in the PC, which was running *Premiere 5.1*.

With the entire soundtrack exported from *Cakewalk* into *Premiere 5.1*, Adam used the stop motion feature in *Premiere* to capture digital stills at a rate of 12.5



Fimo, a bakeable Plasticine, was used to construct most of the props. Available at most craft shops, Fimo comes in a large range of colours.

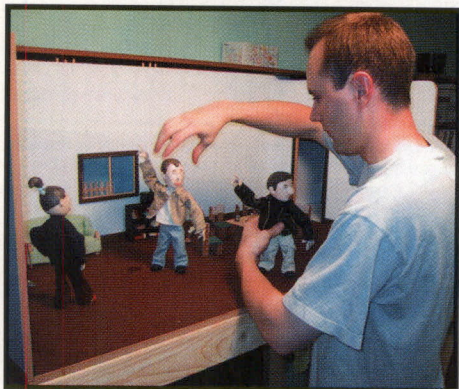


Left to right: Fiona, Dalle, Matt and Adam, all formidable caricatures of their namesakes. Puppets were secured to the set with bolts through their feet (also called tie-downs).

frames per second. This was achieved via the camera and a Miro DV300 capture card. Within *Premiere*, the user selects Stop Motion from the File/Capture menu and a window appears in the application interface showing what's within camera shot. No tape was required because *Premiere*, the Miro card and the camera enabled him to capture frames directly to hard disc. When you press Stop within *Premiere*, your frames are automatically compiled into an AVI. The clip can then be dragged around the Adobe interface for editing. This process resulted in a staggering 5000 frames for just under seven minutes of film. Adam estimates that he spent nine straight 14-hour days, hunched over his mini-universe, bending and stretching his puppets and props into shape.

"If you do use other software or capture methods, you'll end up importing the files into *Premiere* to assemble them anyway," says Adam. "That's the advantage of *Premiere* — it gives you everything."

When editing was required, Adam exported a series of numbered bitmap frames from *Premiere* to Corel *PhotoPaint*. He'd then edit individual bitmaps to remove unwanted things like pens that had sneaked into shots, or to add effects. "There was one shot where I had sparks flying off a guitar amplifier which blew up. Basically, all I did was export that entire clip as numbered bitmaps, went into Corel *PhotoPaint* and added in the artwork manually, and then imported that series of bitmaps back into *Premiere* as an AVI file. It became a clip again," he explains.



A 200-watt halogen garden light bolted to the set's frame flooded the set with light. Greaseproof paper was used as a cheap alternative to a filter.



Sound effects, such as the computer 'ding' in this shot, were recorded separately and imported into the soundtrack.

The process was flexible, so Adam could do effects and cleaning up as he went. The intro sequence, titling and transitions were all created in *Premiere* and, when complete, Adam rendered it in six sections and edited them together. The full movie – seven minutes at PAL resolution – took half an hour to render.

With the complete experience under his belt, Adam seems to have become a stop motion aficionado. He laughs as he recounts a scene in *Chicken Run*, where he noticed a speck of dirt on one of the chicken's mouths. "I'm in the cinema thinking, 'Oh my God!' The dirt was on one of the shapes of the mouths – they actually replace mouths as well. And when the chicken spoke, it disappeared, but when he came back to not speaking, it reappeared. I thought, if it was good enough for them it's good enough for me."

Adam believes that any wannabe animator can use DV to produce their own stop motion movies. "It's the same as any other film you make – think of the end result. Think of what you want to have on a video cassette that you want to be able to show people. Don't think of the mechanics of doing it," he advises.

You might be an animator but you've still got to be a film maker. You've still got to be a director and tell a story." And, he suggests, start small. "Do 30 seconds or a minute. Do simple stuff first. Animate Lego men or puppets that already exist."

Waitangi Street: Matt's Dinner is an impressive example of what can be produced with a DV camera, a



It was important for the puppets' hands to be firm but flexible. Flexible Fimo (Superflex) was used although it cracked easily. Foam latex is a better solution.

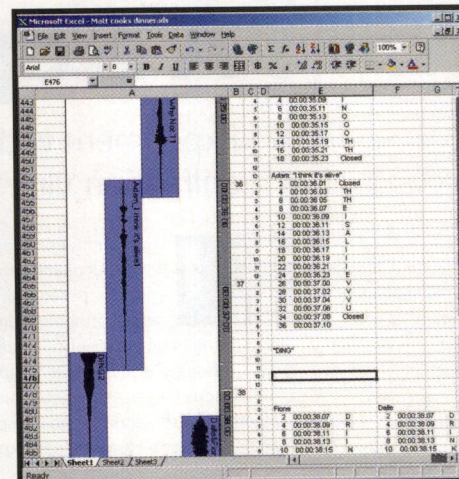
bit of research, a sense of adventure and an enormous amount of persistence.

"Anyone can do this stuff. Anyone can go out and buy a \$2000 computer, a \$2000 video camera, a couple of hundred dollars worth of clay and make a movie," Adam says with a grin. The software is there and it has help functions. There's a whole network of people on the Internet who can help you do this stuff. The difference is that I've had the time to do it."

Turn the page to see how some of the elements of the movie were created, including the lip synching.



Stop motion requires consistent light – any variation can cause flickering. A secondary light from the side was used to highlight facial features in this shot.



A sample exposure sheet – the exported soundtrack from *Cakewalk* is shown on far left, next to second count, shot/frame number and mouth position.

Useful resources

Websites

[w] www.stopmotionanimation.com – useful info, message board, and links to other resources.

[w] www.armaverse.com – supplier of kit-form armatures in human skeleton or dinosaur forms.

[w] www.barnesproducts.com.au – supplier of silicone rubber, polyurethane, epoxy, polyester resin, foam latex and other materials for the model making and special effects industries.

Mailing lists/groups

[w] www.egroups.com/group/clayanimation

[w] www.egroups.com/group/stopmotion

Software

Magpie, Magpie Pro

[w] www.thirdwishsoftware.com – shareware stop motion lip-synch software.

Cakewalk 9.0

[w] www.cakewalk.com – music composition and sound editing software.

Adobe Premiere

[w] www.adobe.com – video editing software with built-in stop motion feature, comes packaged with many video capture cards.

Stop Motion Pro

[w] www.stopmotionpro.com – great stop motion capture software, but only compatible with Video For Windows capture devices.

Hardware and software requirements

The combination of sound and video requires heaps of computing grunt...

Adam used a Pentium III 667 with 128MB RAM. It had a 9GB SCSI III hard drive that plugged directly into the SCSI interface included on the Miro DV300 capture card.

He connected the Panasonic DS1 DV camera to the capture card and used the stop motion capture feature in *Adobe Premiere 5.1*. "Whatever is coming through the lens in *Premiere* will be shown in a window on the monitor. You click the capture button every time you want to take a frame," he says.

Adam explains that stop motion on DV needs both a DV capture card and a hard drive that can maintain a very high transfer rate. "I've gotten away with using a consumer-level hard drive with an Ultra ATA/100 interface. The problem with consumer-level hard drives is that they're not designed for video transfer. They're fast, but they heat up, so they have to stop for a nanosecond and recalibrate. If you do that while transferring video, it causes hiccups. You need a robust hard drive."

While this configuration handled seven minutes of film, Adam has found that any project of more than about ten minutes is ambitious on a standard PC.

A stop-motion overview

Experiment with key techniques behind Adam's *Waitangi Street: Matt's Dinner* animation film: lip-synching, soundtracks and exposure sheets...

In any animation project, deciding what your characters will look like is easy compared with the painstaking task of bringing them to life — that is, giving them personality, voice and movement.

Adam Surplice used *Magpie* to see what shapes he'd need to mould onto his puppets' mouths to, according to the speech in his soundtrack. Here you can experiment with the same process using sound files from *Waitangi Street: Matt's Dinner*.

Once this is complete, and the script, soundtrack, set, puppets and props are in place, you're ready to start animating — that is switching the DV camera on and filming!

This tutorial gives you a taste of both lip-synching and animating using Adam's film. The movie is in the Tutorial\Stop Motion folder on the cover CD and can be viewed with the Windows Media Player. Mac users can download this from [w] www.microsoft.com/windows/windowsmedia/players.asp.

Magpie is provided on our CD for you to try. Adam's entire film in a compressed format in the Tutorial\Stop Motion folder.

Expertise provided by Adam Surplice, Web designer and Managing Director of [w] www.wheretostay.net. Words provided by Melanie Surplice. Contact her at [e] melanie@speakeasy.com.au.

Part 1: Lip-synching

Look closely at mouth shapes as you put words into this puppet's mouth...

Before you start

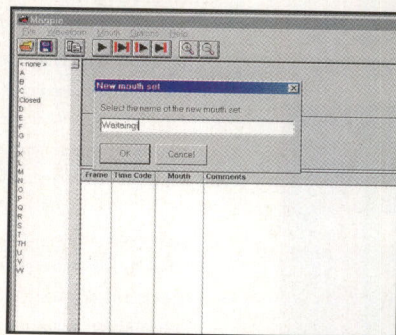
During this process, it's useful to keep background noise to a minimum and have the volume on your computer turned up loud. Also remember that this example only uses nine mouths. While it's still possible to create many words, you'll find that dialogue is somewhat limited. Sample files provided in *Magpie* have more mouths, and therefore more life-like dialogue.

Mapping common sounds

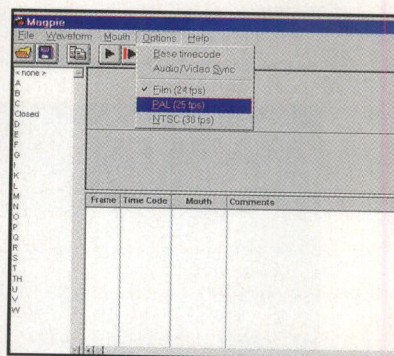
It's worth having a printed copy of each mouth in front of you, so you can easily and quickly see what shape each mouth is. It can also be useful to assign the entire alphabet (or common sounds), mapping sounds/letters to the mouths available. (For example, the sound 'S' could be mapped to our 'C' mouth.)

Keep a mirror handy

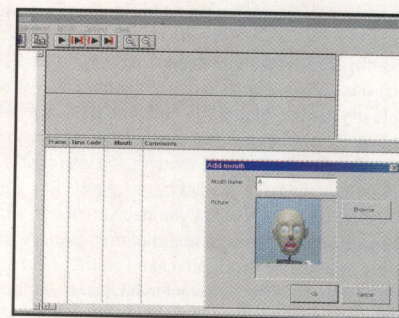
As silly as it may sound, it's useful to keep a mirror handy for checking out your own mouth shape for particular words. As you begin to assign each sound bite to a mouth, you'll find you're automatically saying the word or sound in an exaggerated way.



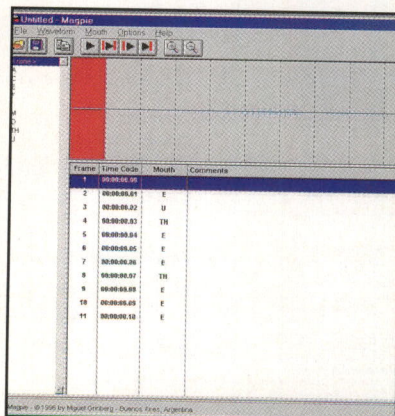
1 Install *Magpie* from our cover CD, and familiarise yourself with the Getting Started section in the Help menu. Although the software comes with pre-defined sets of mouths, we'll use images from Adam's film. From the Mouth menu, select New Mouth Set, and create a mouth set called *Waitangi*.



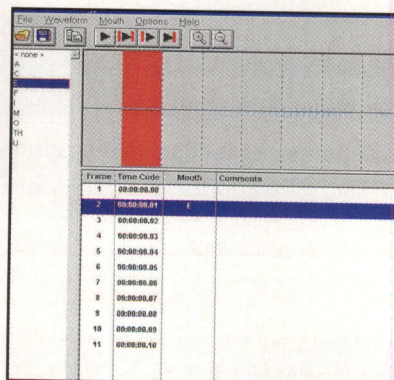
2 In the Options menu, you have the choice of Film, PAL or NTSC, which determines the number of frames per second. It's important to make this choice before going any further, because you'll lose data if you have to change the format at a later time. Choose PAL for this project.



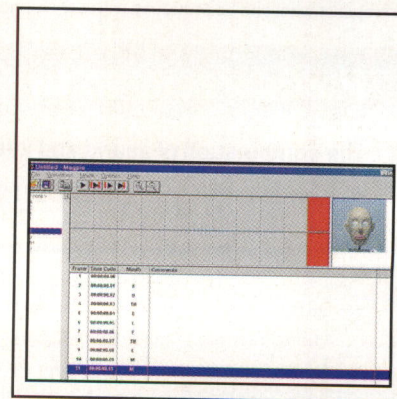
3 From the Mouth menu, select Add Mouth. Open the file called mouth-A.bmp from the CD, and enter A in the Mouth Name box above the image. Repeat this step for the other eight mouths in the directory. Your characters could use anything from a simple, two-mouth set (opened and closed) to a 30-mouth set. This process is the same for any number of mouths.



4 You can either import your own line of dialogue to lip-synch to, or open the file on the CD called *dalle_are_you_ready_2.wav*. The file will be displayed in *Magpie*'s waveform pane. Click the black play button (fourth button from the left) to hear the sound file.



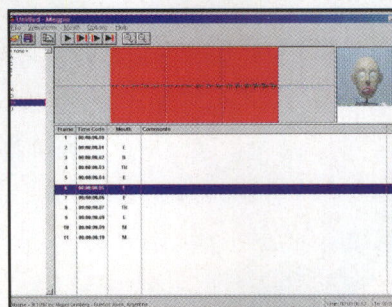
5 Each section between the dotted lines in the waveform panel represents a frame to which mouth can be assigned. Double-click on the second frame from the left. You'll hear the specific sound that frame represents. The trick is to work out which mouth this sound most closely corresponds to. Double-clicking the mouth in the mouth pane, assigns it to that frame. Double-click E.



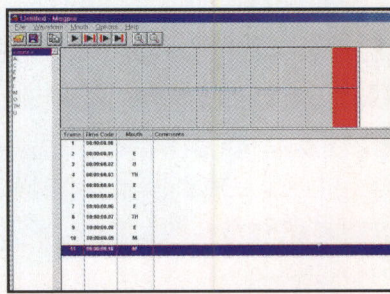
6 Double-click the next frame to the left to hear the sound and repeat the mouth-assigning process from step 5. Continue this process until you get to a flat line in the soundtrack. For the sake of this exercise, the M Mouth represents a closed mouth. It's worth having a few frames of closed mouth if you need to indicate the end of a word.

DV camera set-up

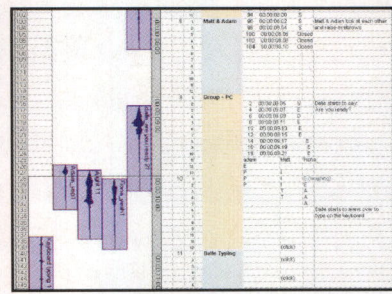
A tripod is essential for stop motion animation. It's also useful to disable all automatic functions and set them manually yourself. For example, if the camcorder automatically adjusts light level or white balance, it will create a strobing effect in the film. You should use the white balance lock to keep it consistent.



7 If you're working on a large soundtrack, use the zoom buttons to focus on a specific part of the file. You can select a range of the WAV file, simply by dragging and clicking across the chosen frames, and zooming in on that section.



8 After you've mapped each frame of the WAV file, click the play button to see the preview. You'll probably want to tweak some frames. Simply click on each individual frame and assign a new mouth. Alternatively, select a range of frames and assign a mouth this way.



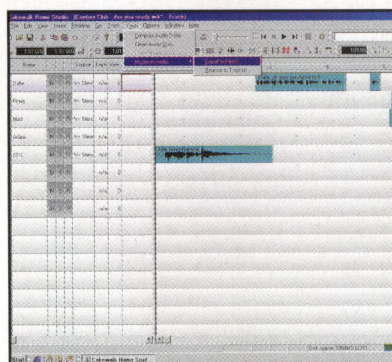
9 Save the file as dalle_are you ready 2.mps. Use the Copy to Clipboard function in the File menu to export it to Excel, where it can form the basis of an exposure sheet. Four other WAV files which correspond to this section of the film are included on the CD for additional practice.

Part 2: Sound and animation

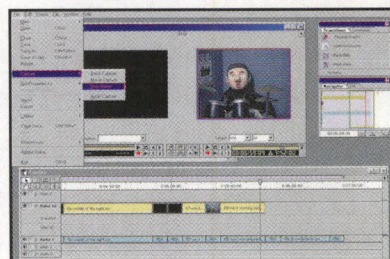
Manipulating soundtrack files with *Cakewalk* and animating in *Premiere*...

Auto-shut off

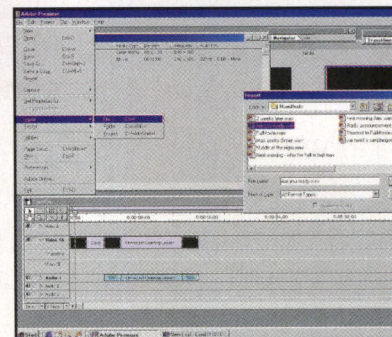
If you're buying a DV camera specifically for stop motion, be aware of features such as auto-shut off. Because it can take 5-10 minutes to set up one shot, the camcorder may automatically shut itself down. This creates problems in *Premiere*, in that it won't allow you to continue the shot in the same AVI file. One possible solution is to remove the tape from the camcorder.



1 *Cakewalk 9* is used to arrange the voices and sound effects. The Mixdown Audio feature is used to create a single stereo WAV file.



2 This shows the stop-motion capture feature of *Premiere 5.1* (File>Capture>Stop Motion). This feature is only available if it is supported by your DV capture card driver. The capture function allows you to grab a single frame at a time from the video stream coming through your camera with a single button click. *Premiere* automatically saves the series of frames as a clip, ready for editing.



3 This shows how to import the WAV file into *Premiere*. If you've done the exposure sheet accurately, this audio track should be synchronised with the stop motion video footage.

Part 3: Putting it all together

Now that the exposure sheets are complete, it's time to start animating...

	A	B	C	D	E	F	G	H	J
49		10							
50		Sec	Frame		Okay Guys				Shot of dalle, explaining game with arm movements
51		12							
52		13							
53		4	1		Inhale				Dalle starts to say:
54		2			Inhale				Okay guys, you have to drink 1
55		3							shot of beer, every minute, for
56		4				00:00:04.08	O		100 minutes.
57		5				00:00:04.10	O		
58		6				00:00:04.12	K		
59		7				00:00:04.14	A		
60		8				00:00:04.16	G		
61		9				00:00:04.18	I		
62		10				00:00:04.20	I		
63		11				00:00:04.22	S		
64		12				00:00:04.24	E		
65		5	1			00:00:05.01	A		
66		2				00:00:05.03	A		
67		3				00:00:05.05	V		
68		4				00:00:05.07	D		
69		5				00:00:05.09	R		
70		6				00:00:05.11	W		
71		7				00:00:05.13	A		
72		8				00:00:05.15	N		
73		9				00:00:05.17	U		
74		10				00:00:05.19	U		
75		11				00:00:05.21	T		
76		12				00:00:05.23	V		
77		13				00:00:06.00	B		
78		45				00:00:06.02	E		

1 This extract from an actual exposure sheet, combines the soundtrack files from *Cakewalk* (column A), second and frame information (columns B and C), notes on puppet movements (column E), lip-synching data from *Magpie* (columns F and G) and explanatory notes (column J).

All WAV files and the corresponding lip-synching file (dalle_are you ready 2.mps), which represent the section from rows 115 to 140, are included on the CD in the Tutorial\Stop Motion folder.

The next step is to start animating! The stop motion animation feature in *Premiere* was used for this project. After manipulating the puppets and mouths into the required positions for a frame, simply capture the image as a still shot. *Premiere* creates an AVI file for each clip/scene.

Special effects can be added during or after filming. AVI files created from *Premiere* can be exported into other graphics packages, where effects can be added. Import the series of bitmaps back into *Premiere* as an AVI file, where it becomes a clip again.

Use the Render feature to incorporate all the files into one AVI. This enables you to preview the movie at normal speed. The full exposure sheet in the CD in the Tutorial\Stop motion folder. **Can's**

Illustration: Magictorch [w] www.magictorch.com

Creative titling in TitleDeko Pro

Despite the unquestionable power of Adobe's excellent *Premiere* non-linear editing software, in some areas it simply doesn't cut the mustard. One area of particular contention is its average – at best – titling abilities...

Pinnacle's new *TitleDeko Pro* is designed specifically for text character generation and is an absolute whizz at adding brilliant custom effects and animations to your title and credit sequences to your video projects. Everything is customisable in the software, and the range of text controls is more closely akin to what professional typesetters and layout artists have when using *QuarkXPress*.

We are going to show you how to generate characters, create styles, animate these styles, and use the file within *Premiere* for a much richer credit sequence. For the sake of screenshots, we have used very large fonts – do alter your fonts and make their sizes about 35–50 per cent smaller – unless that is the look you want to create for your sequences.

TitleDeko fills the gap between *Premiere*'s limited titling abilities and

After Effects' keyframable flexibility, but with minimal render times and the ability to create rolling credit sequences of unlimited length (rather than 256 linear characters in *AE* path text effect). *TitleDeko* is one of the best character generation solutions available. With its ability to integrate directly with your edited projects within *Premiere*, you have the chance to create Hollywood-style credits and titles in a flash.



On your CD

On the CD in the Tutorial\Titling folder are files to support the tutorial. A PC demo version of *TitleDeko Pro* is in the software section. You will also need Adobe *Premiere*, which can be downloaded from [w] www.adobe.co.uk/support/downloads/main.html. Expertise provided by Mark Towse, you can email Mark at [e] mark@bigimpact.tv.

Part 1: Character generation and style creation

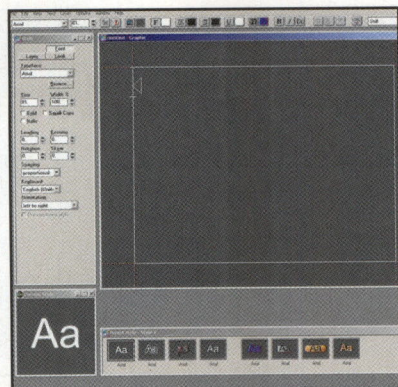
Creating a customised style for your titling effects...

Character generation

Pinnacle has been responsible for character generation hardware and software for broadcast for some years now, but *TitleDeko* is the first time this level of control and power has been available for general desktop usage.

Logos and images

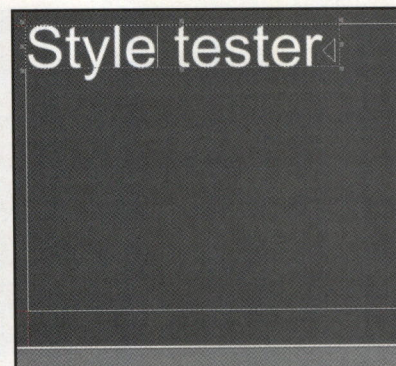
You don't need to composite the *TitleDeko* sequences directly over footage, you can use logos and images of almost every format (including the highly obscure .g, .gf and .vii formats) as your background for the entire sequence, although you will have to render the final output within *Premiere*.



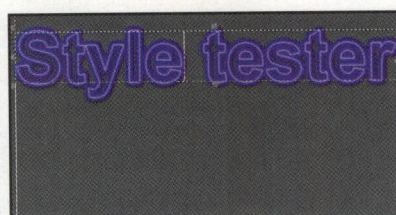
1 Open your demo version of *TitleDeko Pro* from the cover CD. We are going to create a custom style using the various typesetting and character generation features of *TitleDeko* which can then be applied to the entire text you will use for an animated rolling credit sequence.



2 The white region in the workspace represents the viewable area of the screen, the inverted triangle is where you type your credit information – to build the style. A good starting point is to type "Style tester" to apply different styles, decorations and effects to, until you are happy with the look you are trying to achieve.



3 Double-click the first word, *Style*. You will see its bounding box appear, if you click on it three times you will select all text on the screen. *TitleDeko* enables you to apply different styles and effects to each word individually, but it is important to be able to work on multiple words and groups at the same time. We will be creating two styles side by side.



4 Now click on some of the preset styles. You will see any characters within their bounding box change instantly. We want to create our own styles and save them so we can instantly apply custom styles to characters with different requirements. Afterwards, reselect the standard Arial style as our starting point, and select your favourite font – we are using Haettenshweiler.



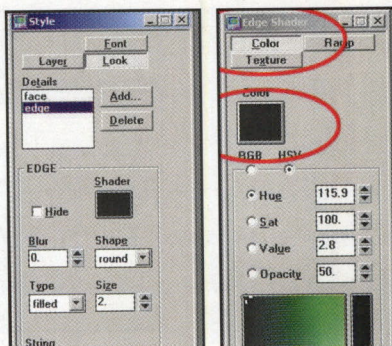
5 In the bottom left, you will see the style window – this is the specific style that will be saved as a preset later on. It is useful to be able to see the raw style and the style actually applied to working text in the main project window. Select the first word, shrink to a more manageable 48 points, and click the small caps box. Make the second word 56 points and either use the bounding box's drag handles, or the width input box to stretch the words to 200 per cent of their original width.



6 Double-click the word "Style". In the Face Shader box on the right, select ramp. There are four small boxes, each with a differing shade of grey. You should left-click on the ramp construction box of your choice, select a colour using the RGB or HSV sliders below, then right-click on the relevant box to apply the colour. We are opting for light orange, through pink, to grey, with highlight applied. Set the highlight colour in the same way.



7 On the bottom right box, select your chosen colour, click the Opacity button and set to 40 per cent. This will give a slight blend to the bottom-right region with the footage the sequence will be used over when we import into *Premiere*.



8 With "Style" still selected, click Look in the main style controls box on the left hand side of the screen. You will also see the basic shader ramp we have just created. Click Add then edge, set the shader to black (by choosing colour from the Shader dialog, like when you created the ramp), and right-clicking on the main colour display (circled) within the shader dialog.



9 Now add shadow in the same way you did for edge, this time set the Blur to 2 and the Distance to 12. Set the shadow from drop to deep – this will combine edge with shadow, creating a nice chunky feel to the text. Save the style as "chunkypink.sty". ➤

Part 1 continued...

Avid

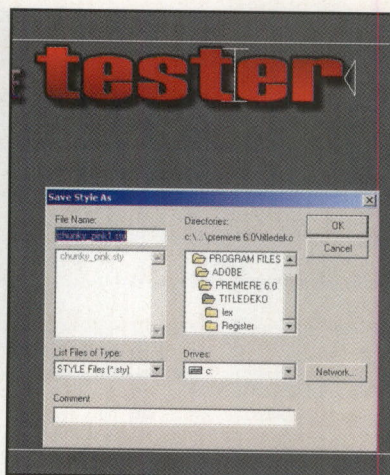
Avid users needn't feel left out – Pinnacle produces the software for both Adobe *Premiere* and Avid systems. Check out [w] www.puffindesigns.com for more details.

Adding depth

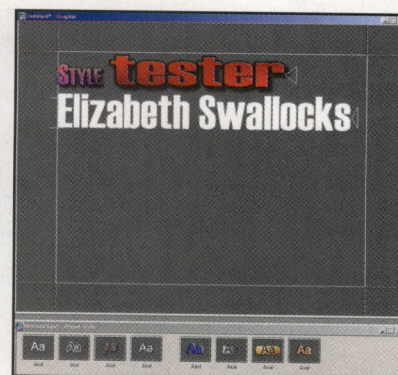
The use of multiple layers is essential for adding greater depth and positioning for your titles. In the tutorial, we have only used one layer. However, try moving all of the names onto a separate layer, justifying to the right-hand side of the display region. Then use the steps for editing the baseline on the new layer to enable all names to crawl up the screen on a curve, whilst the job descriptions remain straight.



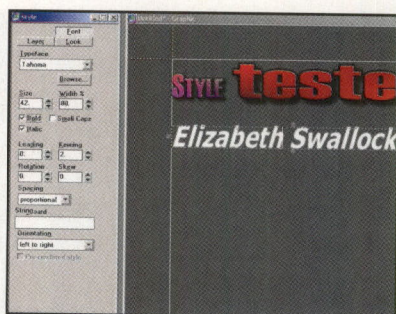
10 Now we want to create a similar – but subtly different – style for our stretched text. You should use the same edge and shadow options as before, but increase the blurring of the shadow to 6 – as the text is larger. Go wild with the Colour, Ramp and Texture tools and create something unique. We have opted for a simple red ramp.



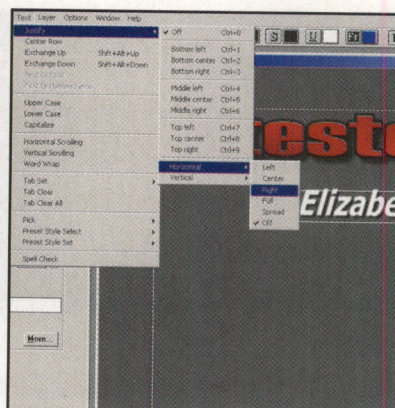
11 Resave the style file. The style file itself contains all new styles and variations created.



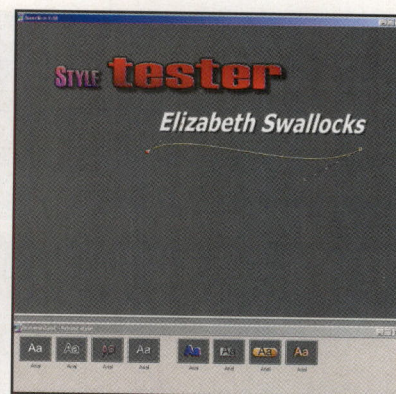
12 We are going to create one more style for the actual names we want to use in the credits sequence. This time we want to create a smaller font which stands out from the initial styles we have created. Click below the two words on the display screen and a new line will appear. Type in a random name for testing purposes.



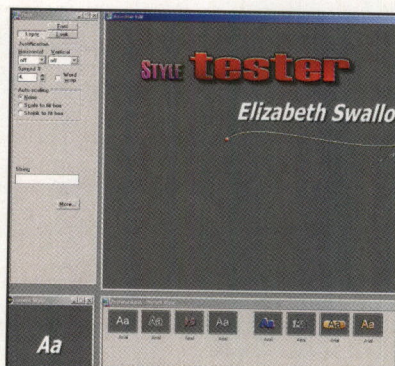
13 Triple-click the name to select as many words as are in the new line, then select a new font. We are using Tahoma at 42 points, with italic, bold and with Kerning set to 2, and Width set to 80 per cent to give a more slim-line feel. On rolling, ending credits it would be likely you would use a size more like 16, but again this depends on your own stylistic preferences. Remember, if you have ten text lines, they are taking up one tenth of the size of a TV or movie screen.



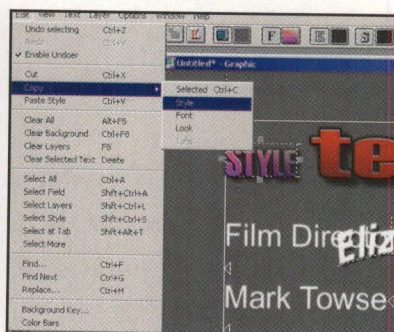
14 From the Text menu click Justify>Horizontal>Right. The name line will now align to the right of the page. There are many other justification settings, enabling a high degree of control. Add a shadow and leave the colour as white.



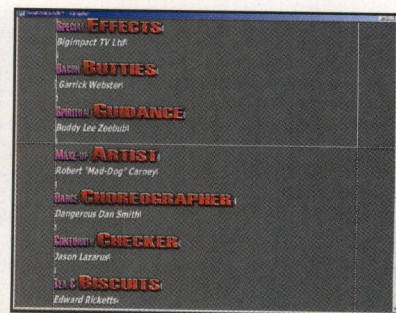
15 Triple-click so both words in the name are highlighted, click Layer then Layer>Edit baseline, which will appear along the top of the screen. Select the Draw Curve tool, represented by a pen in the top-right tools box, and draw a curvy tool. Reposition the Bézier handles to suit.



16 Press Enter for the text's new baseline to be activated, resave the style sheet. Close the Baseline Edit window to return to the general display screen. You may find that with the new baseline, the text is just of the viewable areas. Re-edit the baseline and move it within the visible area of the screen.



17 Now you should type in the relevant text your credits will contain. Don't worry about overlaps occurring on the text with the styles we have already created just yet. Double-click "Style" and click Copy>Style from the Edit menu. Select the relevant words from the credits and go to Paste Style from the Edit menu; Ctrl+V is the shortcut. We are now shrinking our fonts to a more stylistically-correct size as ours were so large to start with.



18 Apply the name style to the names in the credits, the baseline edit will not be applied. Select all the names using the Ctrl key to add the names together, then perform the same baseline editing steps as before. Select all the text and select Rolling from the drop-down, to add enough space for all your credits – this will allow the titles to scroll up the screen when they are rendered in *Premiere*. We have removed the baseline shift in our titles, but it is a useful tool to know how to implement.

Part 2: Using Deko files within Premiere

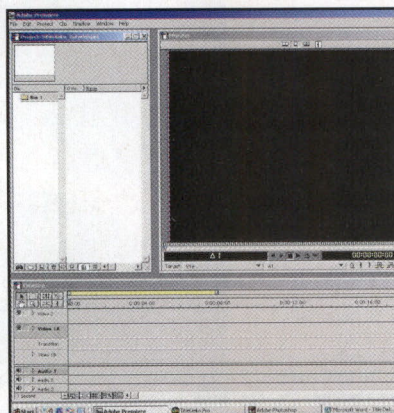
To complete your titling sequence, we will be using Adobe *Premiere*...

Extra effects

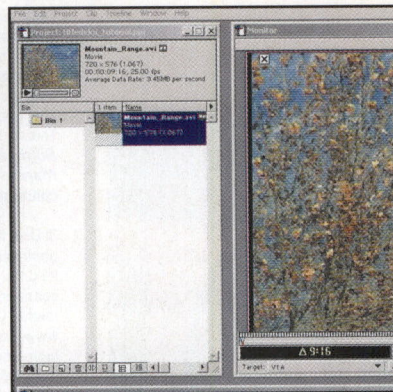
TitleDeko is a piece of software specifically geared to the titling and credit requirements of video and TV producers, or dedicated home DV producers. If you simply want to make pretty textual graphics that swirl around the screen with lots of effects, you will be much better off with a special effects solution like *After Effects* or *Comotion*.

Premiere

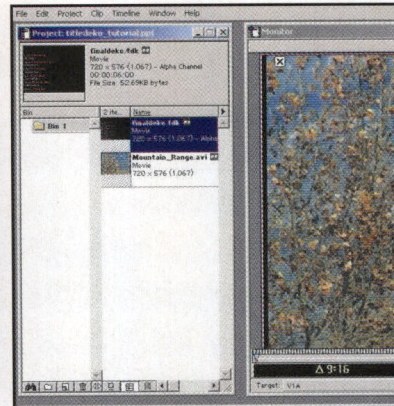
To perform this part of the tutorial you need Adobe *Premiere*, which can be downloaded from [w] www.adobe.co.uk/support/downloads/main.html.



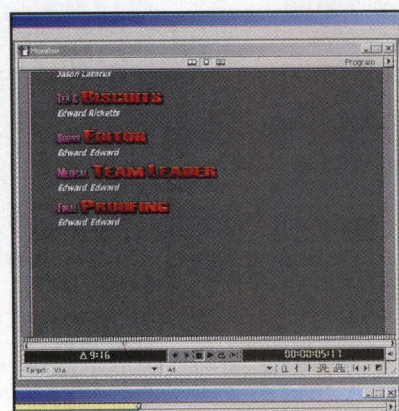
1 *TitleDeko* files are natively recognised by *Premiere* 6. Open up *Premiere* and import some footage. You can, of course, leave a credit sequence black with white text – but it's ever so slightly dull...



2 Click *File>Import>File* and select some footage to act as the background scene which your credits sequence will scroll over. UK PAL resolution is 720 by 576. Also, make sure your copy (or demo) of *Premiere* is set for A/B editing, as we will need to stack layers.



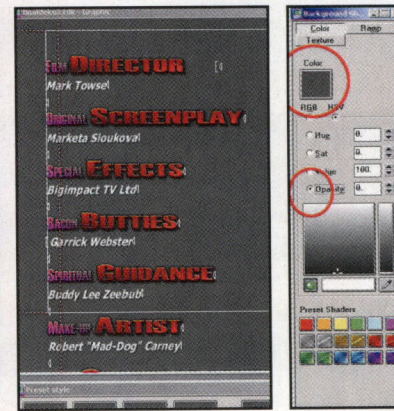
3 Click *File>Import>File* and select your saved *title_deko.tdk*. You can use the premade file from the CD-ROM, *finaldeko.tdk*. Drag your footage to track 1a and the *TitleDeko* file to track 2. You may find that the .tdk track is too short.



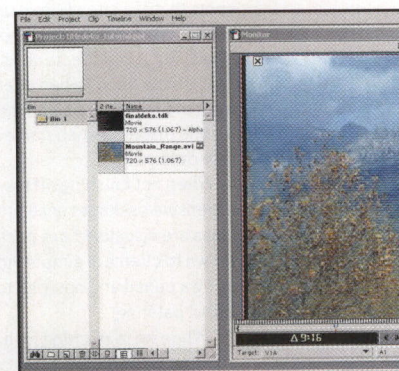
4 Perform a quick test by pressing *Enter* – oh no, there's a lovely opaque background and it's obscuring our footage. In the project window, double click the TDK file you imported, *TitleDeko* will be launched.



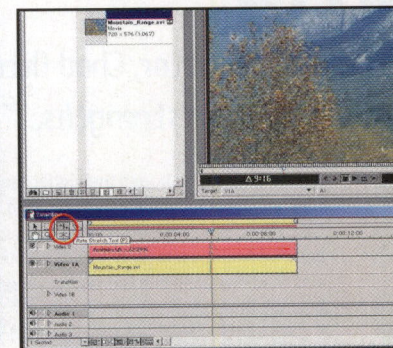
5 *TitleDeko* files have a perfect alpha channel created, but they either need the backgrounds taking out, or the opacity of the background changed. Turning the backgrounds on and off will still save a solid matte in the TDK file. Press *Ctrl+F7* to open the Background Shader dialog.



6 Click on the *Opacity* radio button, set the value to zero then right-click in the box, which is circled. This sets the background colour to transparent, although you won't notice any change because the default background is the same colour.



7 Press *F12* to save the file and automatically return to *Premiere*. You cannot actually use the *Save* command from the *File* menu when *TitleDeko* has been opened from within the *Premiere* environment, and you can use *F11* to return to *Premiere* without saving, should the mood so take you. The background should now be black.



8 Now, back in *Premiere*, select the *Rate Stretch* tool (the same as *Time Stretch*) which is a sub-button on the main editing line (circled), and drag the end of your footage to match the end of your other footage. Feel free to experiment with different rates. There isn't a way within *TitleDeko* to alter the length of time the default rolls or crawls take, so you have to use this method.



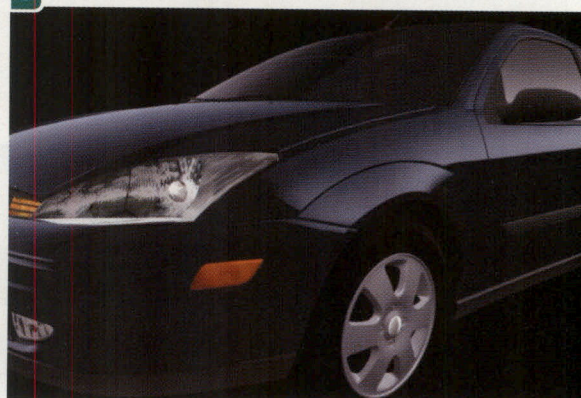
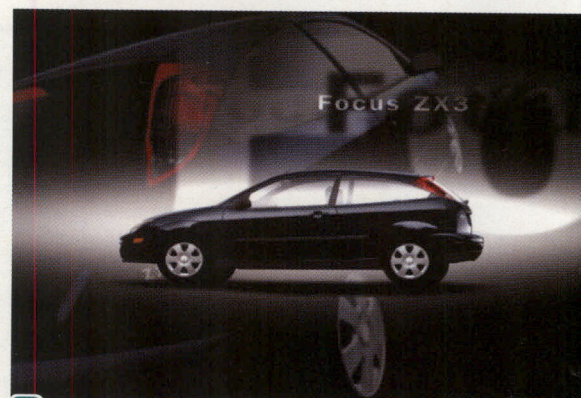
9 Render your footage and Robert's your mother's brother – a groovy animated title sequence. Don't forget that by using multiple layers you can create more complex effects like crawls along the Bézier paths we experimented with earlier, with a layer rolling up the left and down the right. Experiment and enjoy! **ca-s**



1. DKP created a flurry of CGI Monarch butterflies using *Maya* to follow a live-action SUV in this Mexican commercial commissioned by General Motors.

2. *The Nuttiest Nutcracker* was a direct-to-video adaptation of *The Nutcracker* story. With the music of Tchaikovsky and a cast of crazy characters, the protagonist Marie must help thwart the rat king and save Christmas. This was created in *SoftImage*, just before *Maya* ruled the world of character animations.

3. DKP has made a few photorealistic CGI cars in its time. Half a car is scanned and then the data loaded into *Paraform* ([w] www.paraform.com) – a high-end 3D product design tool. The DKP team sculpts the surface by connecting a series of points at hi-res then dumps the lot in *Maya* to add shadows and surface shaders. A professional director of photography was brought in for this Ford commercial to help DKP accurately emulate the lensing and rigging.



Dan Krech Productions

More than anything, says DKP's creative director, Chad Nixon, "you have to know your shit and know your strengths..."

It may boast the most innocuous name ever, but the Toronto-based post-production facility DKP packs a client base that can only be described as in yer face. Sony PlayStation, Benson and Hedges, Labatts, Guinness, Ford, Pepsi, Fisher Price and Ziploc Bags are just some of the corporate giants to have driven by DKP for some serious visual effects servicing. It's no wonder then that the creative and technical teams are armed with a vast range of top-notch tools. Their memory-packed PCs (and a few token Macs for the design guys) are loaded with applications such as *Photoshop*, *After Effects*, *Mental Ray*, *combustion*, *Shake*, *flame*, *Jaleo*, and *Maya*.

Interestingly, although the higher-end software, such as *flame* and *Shake*, is vital to the work that DKP does, the lower-end packages, available to most back bedroom users, play a critical role in the huge and fluid business that is creating visual magic for paying clients.

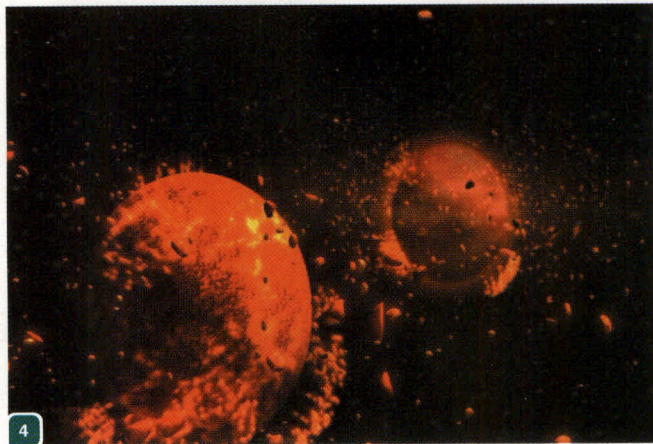
"We use the lower-end packages a lot," explains Chad Nixon, DKP's Creative Director. "If an ad agency has originated a job, it'll send *Photoshop* and *Illustrator* files to work from. What we do will try to mirror their print work so that's our starting point. We'll drop these files into *After Effects* and take it from there. We use *After Effects* primarily for type. It links so well with *Photoshop* and has great text tools and neat effects."

The close relationship between *After Effects* and *Photoshop* means that ideas can be knocked up in the latter, and then the whole composition dropped into the former. *After Effects* keeps the layers intact and any fancy tricks that have been employed in *Photoshop*.

After Effects is a tremendously flexible package, and it's one that can be used to complete a lot of the work that DKP carries out – especially commercial spots that are often filmed using professional digital video. "We can and have finished spots with it," admits Chad. But *After Effects* lacks real-time playback. That isn't so handy when clients come in to view a work in progress and want to make changes on-the-fly. It's one instance when *flame* and *Jaleo* jump in and take over.

When not finishing off the odd job, the less expensive packages act a little like sketching tools. Ideas are visualised in a package like *After Effects* and shown to clients at simple video resolution. It's like using a pencil and notepad to demonstrate an idea for a final painting.

"When we're pitching for a commercial, I'll knock up a sequence in *After Effects*, perhaps showing some text swooshing onscreen, then I'll render it out in QuickTime, send it across the Net to the client asking, 'Is this the type of thing you're thinking of?' It's important to be able to do this when we have clients that are far away, in Vancouver and New York for example, and in different time zones."



4



5



6

You need to be able to do something with it or it's no good at all...



7



4. This documentary film about the creation of the universe, pre and post-Big Bang is fully CGI. It was created using *Houdini* and composited in *Jaleo*.

5. DKP President and Executive Producer Dan Krech was director of the 3rd Unit for the *X-Men* movie. This was a shooting job that involved miniatures and effects shots that were then composited with live action green screen and digital effects.

6. Magic and animal training duo Siegfried and Roy made their magic show into an IMAX Stereo 3D movie, *The Magic Box*. The action was shot from two cameras so the CG had to mimic the position of the left and right eyes. This creates full parallax and perspective and creates the illusion of full stereo 3D images.

7. This is TV commercial for the Sony PlayStation game *Sarge's Heroes*. The soldiers were created in *Maya* and then the whole 3D animation and environments were composited *Jaleo*.

8. This cleaning product commercial's animation was done in *Maya* and the compositing in *flame* and *Jaleo*.

9. Five CGI characters take on a child protagonist armed with a five-barrelled Nerf gun, in this live action wrestling-style commercial for a child's toy, the Nerf Blastfire. Again, DKP completed most of the work in *Maya* and *flame*.



8



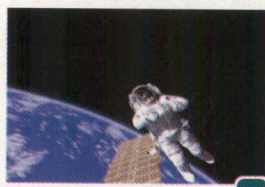
9



1. *Spacestation 3D* is a 65mm IMAX movie. Using the stereo projection techniques, multiple cameras were placed on the International Space Station (ISS) and shuttles to document the construction of the largest manned space station for the live sections of the film. The digital 3D sequence was completed using *Photoshop*, *Shake*, *Houdini*, and *LightWave*.

2. In this South American commercial, the camera moves up the side of a skyscraper which is then revealed to be a cigarette. The live action dissolves to reveal the CG ciggie created in *Maya*, and the whole thing was composited in *flame*.

3. This was a Christmas commercial for promotional toys. DKP animated the CGI toy soldiers in *Maya* that move and interact with the animatronic toys in a live action environment. Multi-pass, motion control photography and blue screen were employed to allow for unrestricted camera movement and story-telling. These many layers were then combined in *Jaleo* with the CGI elements



On the editing side, DKP tends to use *Final Cut Pro* for final edits and for creating animatics and pre-visualisations. The teams can scan in frames of a story board and avoid tying up the more expensive *flame* and *inferno* suites. They don't do any offline editing inhouse — that's completed by a specific editor elsewhere (who would probably use *Avid*, for example).

The lower-end packages do have their limitations. On the whole, they can't handle the complexities of film. Although *AE* can be used to complete spots at DKP, the refining and finishing touches, especially in film work, tend to be handled by *Shake* or *inferno*. These high-end packages simply have the bells and whistles needed to work with the richness of film.

But if broadcasting standards and big movie screens didn't exist, it seems we could all be making the next car commercial in our back gardens. To some extent true, but as Chad rightly stresses, "All these packages and the best computers in the world are just tools. It's like having a paint brush or a pen — you need to be able to do something with it or it's no good at all." Nevertheless, the beauty of DV is just how accessible and easy to use it is. You can cut your own stories and bring your ideas to life with only a decent computer, *Photoshop*, and *After Effects* for company.

Oh, how this simplicity has changed the special effects landscape. Chad's been in the business for seven years, and has seen more opportunities appear for wannabe FX maestros but, as we all know, the competition is growing fiercer than a flame in Hell.

"It's not all gloom," encourages Chad, "but you have to know your shit and workout what your strength is. If you want to be a character animator, practice drawing with a pen over and over again. Take the time to observe people and watch with a specific purpose in mind. If you want create effects, learn the physics of fire, smoke and water. Watch everything and see how it looks and what it does."

In fact, a DV camera can be an invaluable tool for observing the world around us — the world we want to recreate and expand on in a digital environment. "When you spend time in this business you find out that art is actually very scientific," Chad points out.

This was neatly highlighted in a piece of work that DKP completed recently for an IMAX movie about the International Space Station (ISS). "We had to create a moving, rotating, accurate picture of the Earth from space," he explains. Sounds easy, but it wasn't.

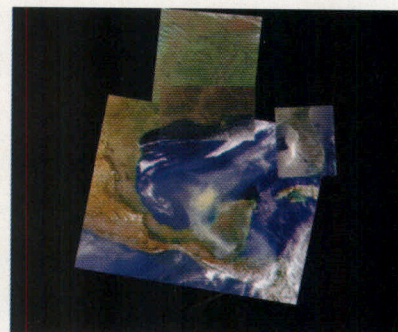
It was eventually built in *Photoshop* (see boxout to the right) but only after Chad and his team had become astronomy and physics experts and worked out the angle and direction of rotation from the Earth, the distance it would travel in the time-span of the movie moment, and that the ISS was situated at the correct relative height. DKP knows that even in our digital worlds, science rules the pretty pictures. **ca-s**



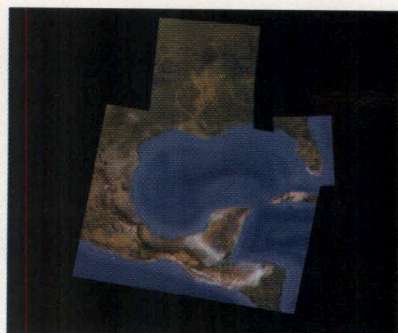
You can view some examples of DKP's work at [w] www.dkp.com. You can contact the company via email at [e] info@dkp.com.

IMAX movie making

Creating a satellite view of North America from Earth...



1 Chad Nixon's team at DKP initially thought that they'd need some good, hi-res satellite photos of the US regions of the Earth to create a sequence for the IMAX movie, *Space Station 3D*, that demanded a shot of the Earth from space. So they downloaded satellite images from NASA's Website.



2 It became apparent that the job was a little more complicated. The Earth had to be round, it had to be moving, and the perspective had to look right from the point of view of the Space Station. Chad used *Photoshop* to colour correct and blend the different photos that they had downloaded.



3 The photos had to be seamlessly blended to create a full map of North America. Bits of land and clouds were added and more colour correction applied. DKP had to brush up on physics and find out the angle and direction of rotation of the Earth, the distance it would travel in the length of the movie sequence, and check the accuracy of the perspective in the shot. Detail has to be just right in an IMAX movie as it's being projected in such large format where mistakes are easier to spot. This texture was created and managed in *Photoshop*.

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Illustration: Magictorch [w] www.magictorch.com

Seeing double with After Effects

After Effects 5.5 can turn footage of one actress into a sequence featuring her digital doppelganger using this split-screen technique...



Expertise provided by George Cairns who has had to do split-screen effects the old-fashioned way for years so is glad of *After Effect's* powerful masking tools.
[e] george@georgecairns.com.



Files on disc

The source footage for this tutorial is on the CD (aRoll.mov and bRoll.mov) in the Tutorial\Double folder. There is also a demo version of *After Effects 5.5* so you can work along to this tutorial.

The split-screen technique is almost as old as the moving image itself. Georges Méliès pioneered the effect with his 1898 film, *Un Homme de Tête*, where an actor appeared onscreen with himself.

In this tutorial we're going to start by examining how the footage used is recorded during the production stage to make a split-screen edit using *After Effects 5.5*. We'll then go on to combine

the two pieces of film to produce the final movie.

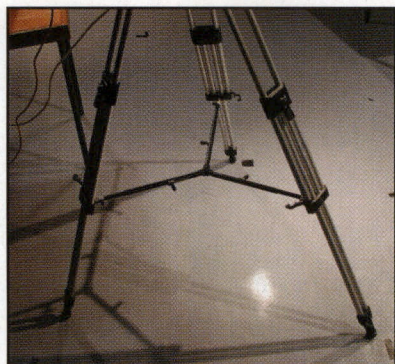
After Effects is a post-production package that deals with video footage which has been shot in the production stage. If the source footage is filmed incorrectly during the production stage, it can be a nightmare to put right when you're at the post-production stage. This tutorial will show you the best logical way to make your split-screen sequence.

Part 1: Production

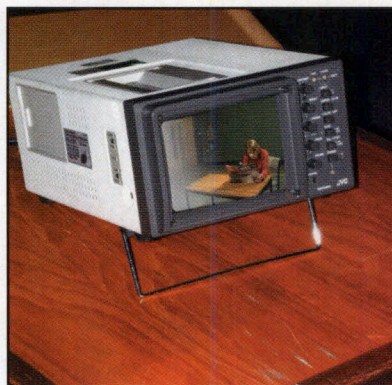
To get the split-screen effect to work you need to shoot under controlled circumstances. The finished sequence will show a girl passing a copy of *Computer Arts Special* to her twin...

Let's split

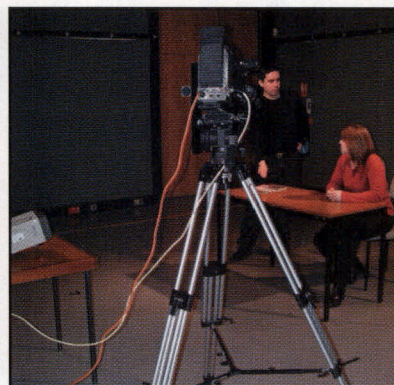
In days of old, a split-screen was done using three-machine editing. You had to record both shots on separate tapes and play them on separate players. A vision mixer would enable you to do a straight vertical wipe between the two shots and you'd copy the result onto a recorder. If a shadow or hand crossed the line, it would disappear ruining the illusion. *After Effects*'s ability to draw and animate curved masks is a very powerful solution to this problem.



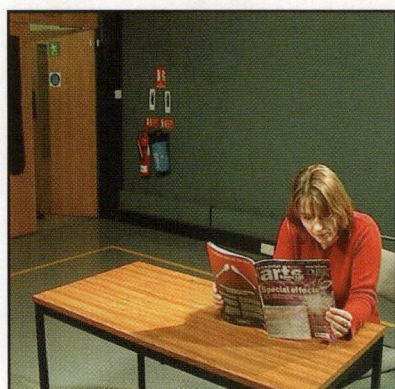
1 The camera must not move. The tripod's legs and head must be locked so that they don't move or swivel during the shoot. The lighting is fairly flat to minimise shadows from one half of the screen being cast into the other half.



2 A separate colour monitor is useful. If you look in the camera's viewfinder you might knock it and ruin the locked off shot. Use the monitor instead to check your framing and focus.



3 Walk through the action to get the framing sorted. Once you start recording don't touch the camera until the shoot is over. Even hitting the stop button could cause the camera to move.



4 The first recorded sequence is called the A Roll shot. In this shot the model, Rachel, plays the first twin reading an issue of *Computer Arts Special*. As the door opens she puts the magazine down at the other side of the table for her twin to pick up.



5 George stands in for the twin to give the model someone to look at and react to. It would be hard for her to get the eye line correct without another person to look at. Having a stand-in is also useful for the timing of both shots. In the final edit George won't be seen at all.



6 George pretends to pick up the magazine and leaves. It is crucial that the magazine is not touched or moved once Rachel has put it down. That's the end of the A Roll sequence. aRoll.mov is on the cover CD in the Tutorial\Double folder.



7 The B Roll sequence is shot next (this is called bRoll.mov and it's also on the CD in the Tutorial\Double folder). The camera is left recording so there's no danger of knocking it. The only thing that can change in front of the lens is the actors. Rachel and George swap roles. The position of the props, the set and the camera remain the same.



8 In the B Roll sequence Rachel plays her twin. She must pick up the magazine from the exact spot it was left in for the illusion to work. If the magazine has been moved at all then it will seem to shift on its own in the final edited sequence.



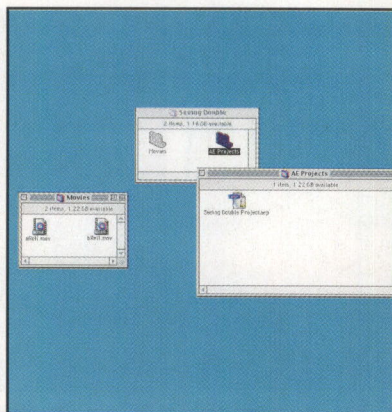
9 Notice George's shadow under the desk. It has strayed into Rachel's section of the image. This will be used to stand in for Rachel's shadow when the two shots are stuck together in *After Effects*. ➤

Part 2: Post-production

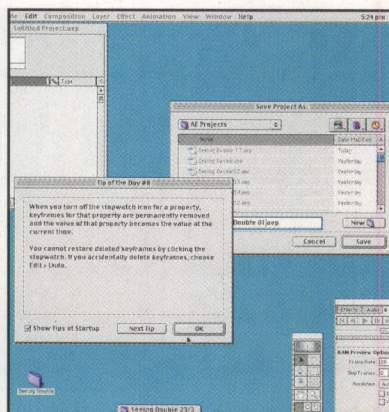
We'll use *After Effects* 5.5 to combine the two studio sequences together to give the illusion that the model has a doppelgänger...

Step by step

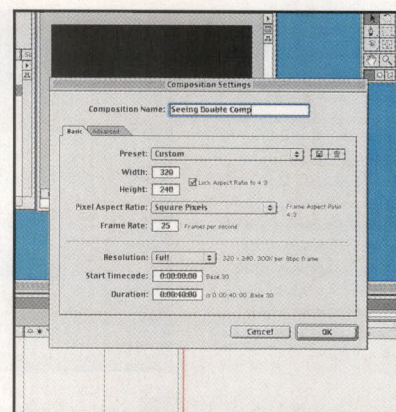
Every time you take a new step during this tutorial save a version of the project with a later number (for example, Seeing Double 03.aep). If things get too complicated or start going wrong you can retrace your steps by opening an earlier project.



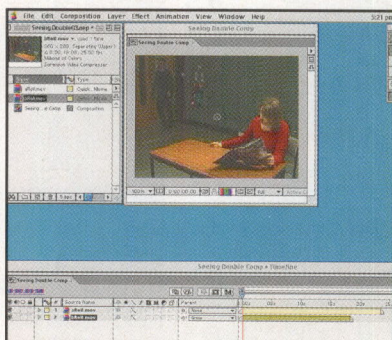
1 Good housekeeping will help the project flow smoothly. Create a new folder or directory called Seeing Double. Inside that create a folder called Movies. Copy the aRoll.mov and bRoll.mov files from the Tutorial\Double folder on the CD into this folder. Create another folder called AE Projects.



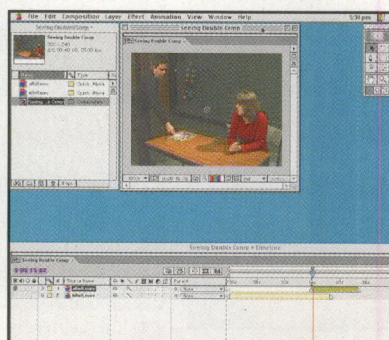
2 Open *After Effects*. Go to File>Create New Project. Note that every time you open *After Effects* you get a tip. You can disable this feature, but it's actually very useful. If you have the full version of *After Effects*, save your project in your Seeing Double folder.



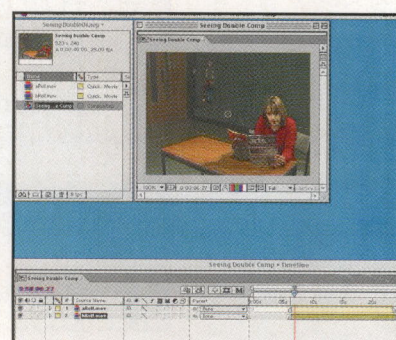
3 Go to File>Import>Multiple Files to bring aRoll.mov and bRoll.mov into the project. Go to Composition>New Composition. Call it Seeing Double Comp. Make sure that the Frame Rate is set to 25 and click OK. The Composition window and the Timeline window will appear.



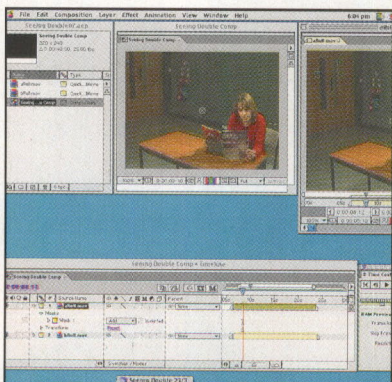
4 Go to the Project Window (top-left of the interface). Drag the aRoll.mov onto the Timeline window. Then do the same with the bRoll.mov. The clips run alongside each other on layers as in *Photoshop*. The aRoll.mov is on layer 1 and the bRoll.mov is underneath it on layer 2.



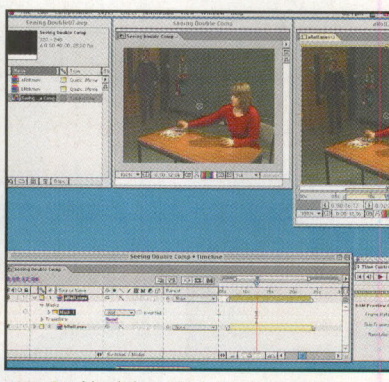
5 To get the timing of the final sequence right, align both movies to the moment when the twin picks up the magazine. Turn off the bRoll layer using the eye icon. Drag the aRoll Timeline marker until George is about to pick up the magazine. Click and drag the aRoll clip so it starts at this moment.



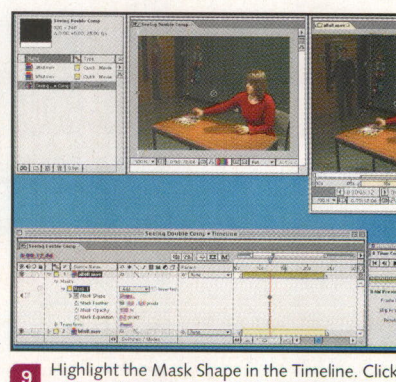
6 Turn on the bRoll layer. Drag the bRoll clip until it starts with Rachel about to pick up the magazine. Align both clips' starting points so that this happens at the same time. Now slide their start points back to the beginning of both sequences.



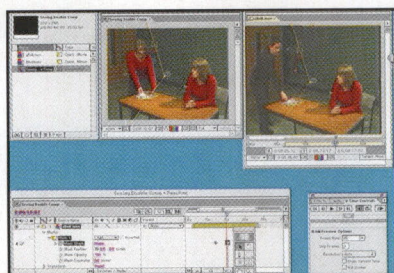
7 Click on the aRoll clip in the Timeline window. Go to Layer>Masks>New Mask. Go to the aRoll layer's label and click on the toggle arrow to reveal the sub-categories. You can see that there is a Masks label there. Open it to reveal Mask 1.



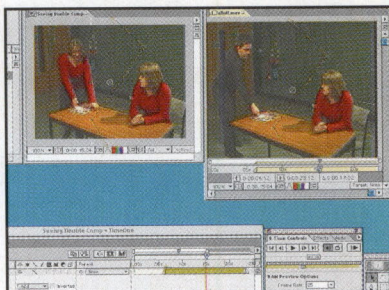
8 Double-click on Mask 1 in the Timeline window. A new mask window opens up. Drag the timeslider until Rachel has just put the magazine down on the table. You will need to mask out the area of the aRoll layer containing George to reveal Rachel from the bRoll layer underneath.



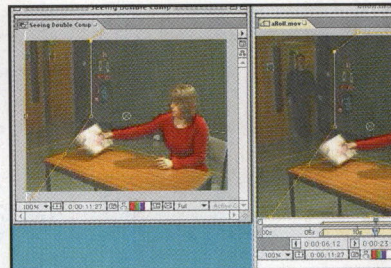
9 Highlight the Mask Shape in the Timeline. Click on the yellow square control points in the Mask window and drag them until the Rachel from the bRoll layer is revealed in the Composition window. Click on the stopwatch icon by the Mask Shape. A keyframe will be set for the mask at this point in time.



10 Drag the timeslider forward until George goes to pick up the magazine. In the Composition window you'll see that the bRoll Rachel partially disappears when she hits the mask. Move the mask by click dragging the points so that the mask line separates the aRoll Rachel and the bRoll Rachel. Another keyframe for the mask appears.



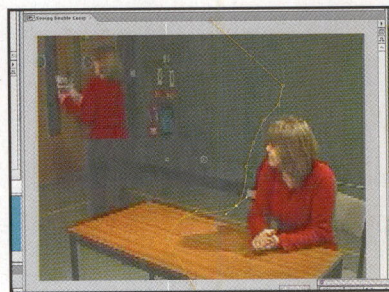
11 Select the Composition window and play back the sequence using the Time Controls window. You should now see two Rachels and no Georges. The mask animates between both keyframes allowing the aRoll Rachel to put down the magazine and the bRoll Rachel to pick it up.



12 Go through the sequence frame-by-frame until you find a problem. Here the shadow of the aRoll magazine falls slightly into the mask and vanishes. To fine tune the mask click on the yellow line with the arrow tool while holding down the Command/Ctrl key. You can now insert a new editable point on the mask.



13 Move the new edit point. A new keyframe is created automatically for the Mask Shape. For a curvier selection Command/Ctrl-click on the new edit point. Handles appear, so drag them to curve the selection. These are similar to Photoshop's paths tool and are a powerful way of selecting an area using minimal points.



14 As you move one curve handle the other see-saws changing the selection on both sides of the edit point. Command/Ctrl-click on one of the curve handles and you can move it independently of the other handle. Tidy up any other areas of the mask paying particular attention to show the bRoll Rachel's shadow on the wall.



15 To remove the chance of the mask being spotted feather it slightly to blend the two clips together. Turn on the stopwatch icon for the Mask Feather and enter a value of 4.0 pixels. Move the work area bar to cover the main action of the movie. The finished sequence, composite.mov, is in the Tutorial\Double folder on the CD.

Part 3: Common mistakes

If you're going to film your own footage for a split-screen project watch out for these three common errors...

Keyframe navigation

There is a quick way of jumping from one keyframe to the next. Use the little arrows in the far left of the Timeline window to navigate to each keyframe. Delete a particular keyframe by turning off the tick.



1 Don't knock the tripod. If you do, the background elements will become misaligned, ruining the illusion that they are part of the same shot. It would be difficult to realign the background elements in After Effects.



2 Don't adjust the focus once you start to shoot. Set it up beforehand so that the actor is in focus in both the aRoll and bRoll shots.



3 Be careful where you film. Don't let elements you can't control cross the line between the aRoll and the bRoll. There's no way After Effects could fix the problem of the passing lorry in this particular shot.

Day for night

Shooting at night is both expensive and difficult. So why not shoot during the day and use *combustion 2* to bring on the night. Here's how...



Expertise provided by Christopher Kenworthy. You can contact Christopher via email at [e] christopher.kenworthy@hotmail.com.



Files on disc

You'll find *Kneel.mov*, *SwordCC.mov* and *Blue.jpg* on the CD in the Tutorial\Day to night folder, along with a demo of *combustion 2*.



For this tutorial we'll be using *combustion 2* — a demo is on the cover CD — as it's very versatile. We'll start by darkening a scene and adding night-time light that fades over distance. Once you've perfected this look we'll change the sky. The general advice is to avoid shooting the sky, white sky won't go very blue, as it spoils the effect. Sometimes, though, the shot doesn't work without the sky, so we'll show how you can remove the daylight and put in realistic twilight.

Shooting in the day saves time and money and, with a little skill, your footage can be made to look like it was shot at night. In films, night is rarely realistic as it would be too dark. Instead, directors aim to give the impression of night. Many night-time scenes are filmed with the moonlight so strong and bright that it defies belief, but audiences are willing to go along with this. Equally, they accept that a blue or grey scene is meant to be night, and many won't even suppose that it was shot during the day.

Part 1: Day for night in combustion 2

By changing the colour and adding shaped light, we can create an illusion of night...

Background shift

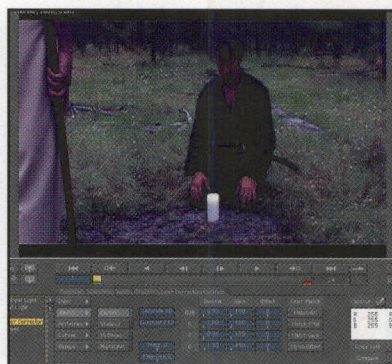
There isn't much camera movement in this clip, so it doesn't matter that we leave the graduated sky exactly where it is. If the camera moves a lot vertically, you will find that the sky appears to be shifting in the background. To avoid this you could avoid a graduated colour, or you can use the tracking controls in *combustion 2* to attach the layer to the foreground image.

Some spill

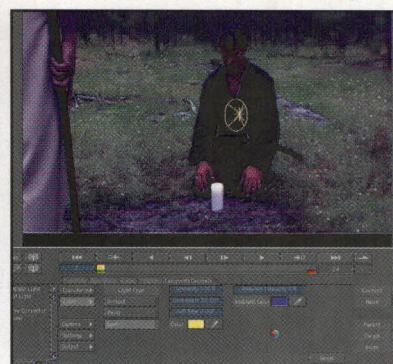
You may find that some spill (bright light) onto the actor works rather well to make it look like there is moonlight shining onto him. Be sure to check this in each clip you use, before deciding to use it, though, or you may find his face or body over-dissolves, spoiling the effect.



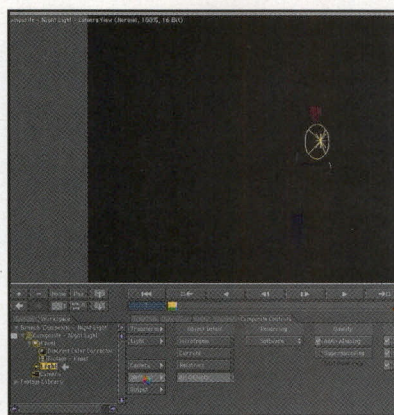
1 For the basic guide to using this program, see the tutorial on colour correction, starting on page 30 of this issue. Create a New Project (Composite>2D), and import Kneel.mov from the Tutorial\Day for night folder on the CD.



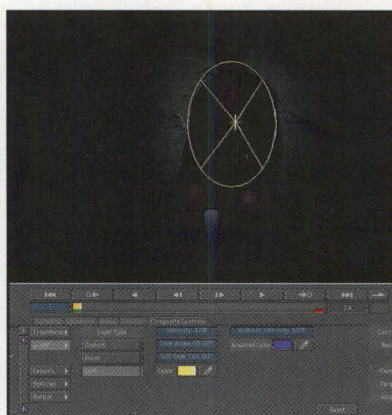
2 Colour correct the clip using the techniques from the colour correction tutorial but, instead of aiming for accurate skin tones, go for a washed out twilight look. Night scenes are never as dark as real night, so try to get a vague impression of night as your starting point.



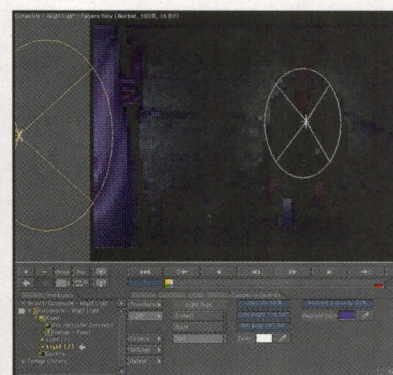
3 With the Composite Control tab selected, click on Light. An icon for the light is visible in the frame, so drag this over the seated figure. You will see no effect yet, but click on the colour box and set this to a yellow, and choose Ambient light that is blue, set to 20 per cent. Check the Spot box.



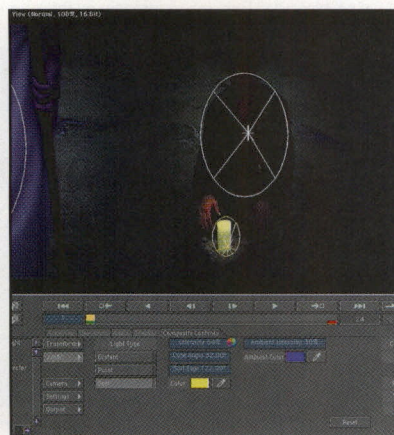
4 Click the Settings buttons and, in Render Effects, check the boxes for Shading, Shadows and Reflection. You will see that the light now has an effect on your layer. Change your yellow and blue, if required, for a natural effect.



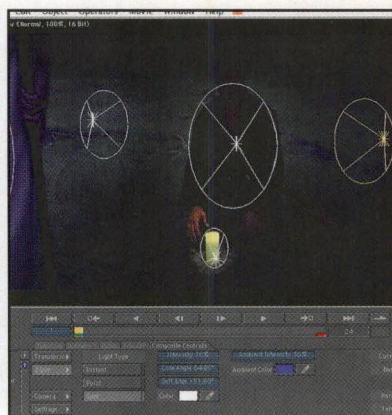
5 Click Light again, and use the Intensity, Cone Angle and Soften Edges sliders to leave a soft pool of light over the figure, with darkness around it. Settings of 47, 85 and 181 respectively were used in our runthrough.



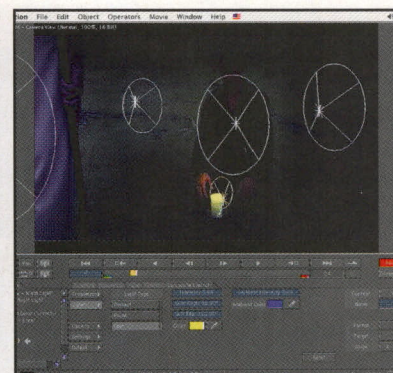
6 From the Object menu choose New Light. Check the Spot box, leave this light white, and make sure that the Target drop-down menu is set to None, preventing the light being focused onto the centre of the image. Drag the light to illuminate the man at frame-left, using the controls as before to soften the glow.



7 Repeat this process, adding a new, small light over the candle. This light should be coloured yellow. Allow some of its light to fall on the floor, rather than just centring it on the flame.



8 Add two new lights to illuminate the grassed area behind the man, but before the forest. This gives the impression that there is another light source, (perhaps the moon), that is lighting the scenery, but dropping off with distance.



9 Click the Animate button, advance the frame, and move the candle light. Repeat this several times to make it flicker around the candle. If you work on a scene with camera movement you'll have to animate your lights as well using the tracking functions, so they continue to illuminate the same objects. ➤

Part 2: Night sky

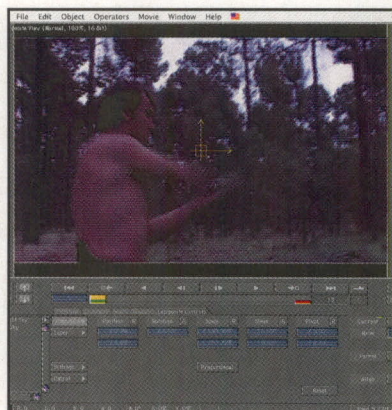
Now you know how to create a night scene, get rid of the glaring sky for the complete effect...

Fake light

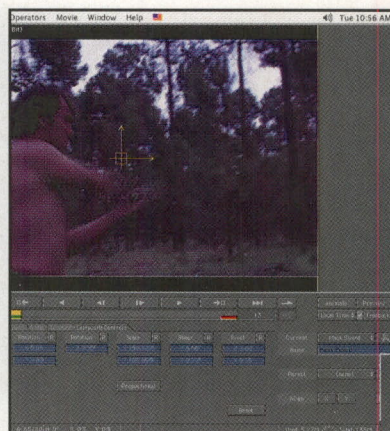
If you can use artificial light at all on set, this helps. Put a wash of light on your character – even from a torch. And, although it won't show to the eye, it will add some yellow to the skin. You can then use colour correction to make the actor shine while you fade out the background to blue as seen in the colour correction tutorial starting on page 30.

Dropping off

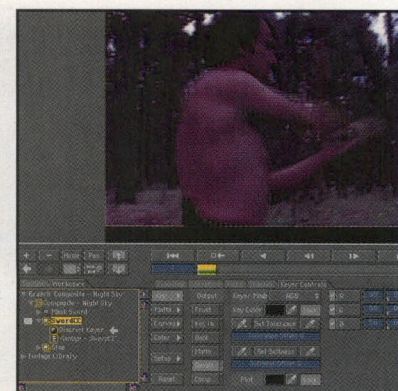
With the clip that we have used, there was nothing but natural, cloudy light, which illuminated the environment equally. To create the illusion of darkness and candle light, we need to take some light away, then add new patches of light to give a sense of depth. In street-lit areas, you get pools of light that drop off rapidly into darkness. Although this effect occurs less often in nature, we associate it with a night-time look, so it is often used by film makers.



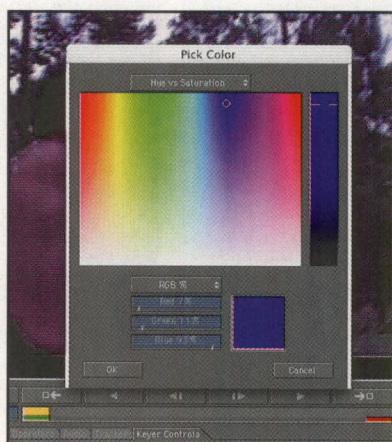
1 Create a New project (Composite>2D>Duration 13 frames), called Night Sky. Import the image Blue.jpg, and the footage SwordCC.mov, in that order from the Tutorial\Day for night folder from the CD.



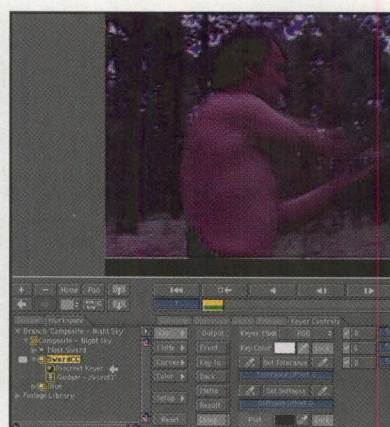
2 Select SwordCC in the Workspace, and from the Edit menu choose Duplicate. Rename the new version Mask Sword, by double-clicking and typing the name then pressing Return or Enter.



3 Click the tiny yellow boxes to the left of Mask Sword in the Workspace to make it invisible. The screen will appear the same, as the clips are identical, except the yellow box will be grey. Double-click SwordCC, and choose Operators>Keying>Discreet Keyer.



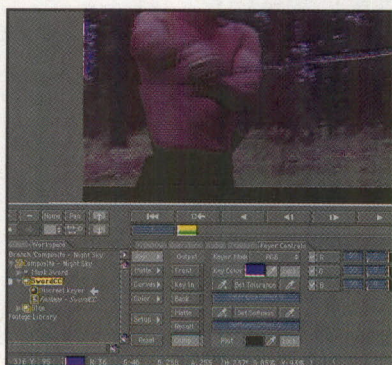
4 In Setup, find the Colours section and click on the Comp box. Select a bright colour from the colour palette. As you remove the sky, this bright, artificial colour will show up revealing your matte.



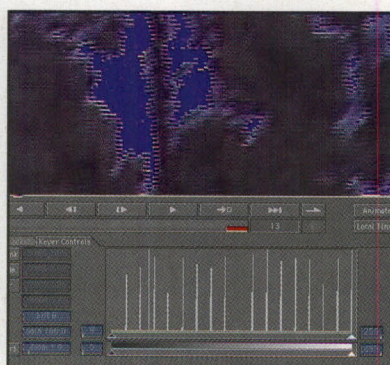
5 Go back to Key, and under Output select Comp. As the keyer is set to black by default, half your image will disappear, revealing your artificial blue. To correct this, use the Keying eye-dropper and click on the white sky.



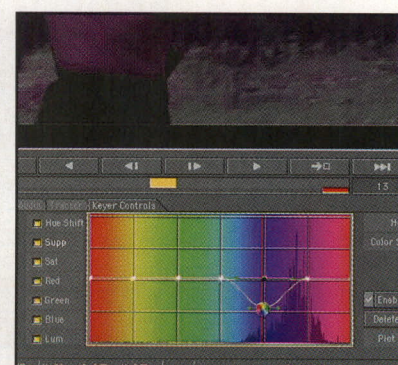
6 Use the Tolerance Offset eye-droppers to adjust the mask, so that more fake sky is revealed through the edges of the trees, taking away the white. Use the plus eye-dropper to select colour you want to take away. If you go too far, and his shoulders are keyed out, use the minus eye-dropper on those areas.



7 Repeat this for Softness Offset, and then switch between the Tolerance and Softness controls to get the required effect. You may find that fake light spills onto his shoulders, so adjust your key to remove this. Run through the clip to make sure that your key works at all frames.



8 Click the Toolbar tab, select the magnifying glass and zoom in on the tree edges. In the Keyer select Colour, and use the Colour Suppression Target eye-dropper to select the purplish-white edge between the sky and the trees. Use the Plot eye-dropper to select the same colour.



9 The Plot dropper placed a vertical red line in your histogram to show the colour that you should suppress. Make sure that Supp is selected (left of the Histogram), Click on the white line where it crosses the red line, and drag the point down to create a smooth arc.

Masked man

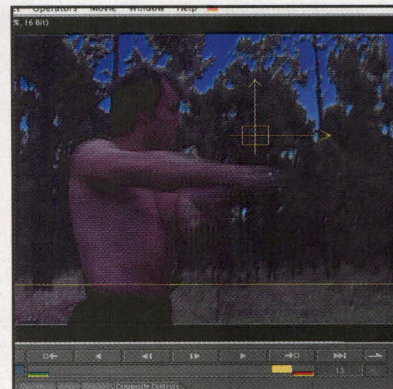
In our second example, we mask the sword so that the sky doesn't show through it. You may think it looks fine with sky showing through, because it looks like a reflection, but it is worth learning the technique. Sometimes the best key is one that just happens to put a hole in your actor's face. Rather than weakening the whole key and ruining the sky, it's better to mask the actor's face. It may seem tricky at first, but run through a few times and it will become easy.



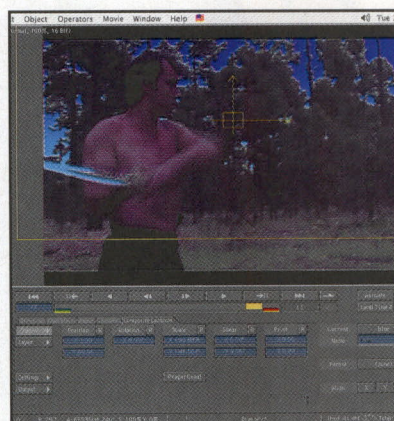
10 Click to add control points half way along each side of this arc, and drag them inwards. This limits the amount of colour suppression and makes sure that the colour you want is suppressed, without turning a lot of the image green.



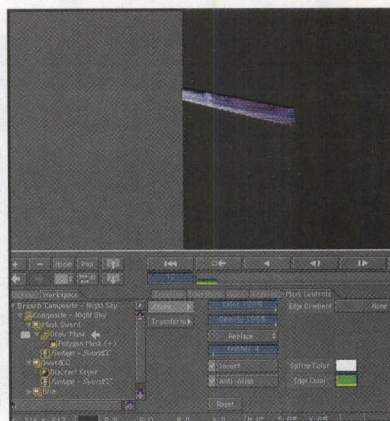
11 Select Matte, and check Shrink, Erode and Blur. Set their values to 0.6, 0.8 and 0.8 respectively. This will smooth your matte. Toggle these switches on and off to see what a difference this makes.



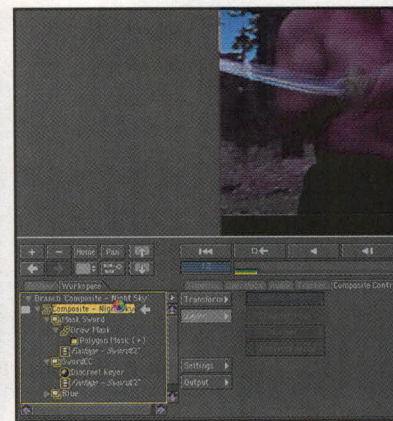
12 In the keyer select Result, then in the workspace double-click on Composite Night Sky. You will see the Blue.jpg appear. Select the Blue.jpg in the workspace, and adjust its scale and position so that the graduated sky shows through the trees.



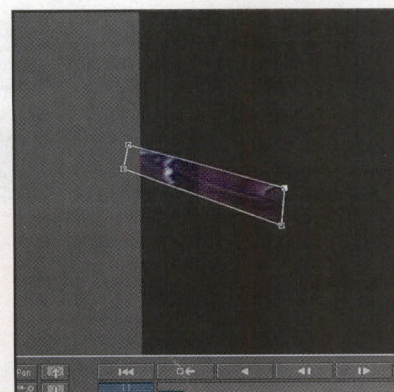
13 Run to the end of the clip and you will see that the sword has been matted out, now shining blue. To correct this, reactivate the Mask Sword clip in the workspace. An uncorrected version of the clip is now visible.



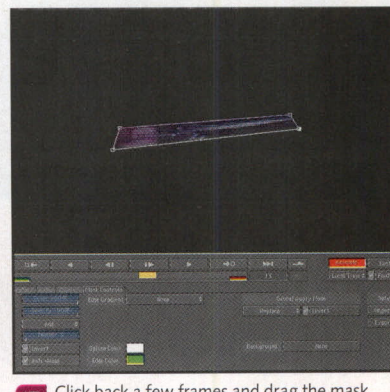
14 Double click Mask Sword, and select Operators>Mask>Draw Mask. Now click around the sword, drawing a mask all around it. In Modes, drag Feather up to about 4. Click both the Invert boxes.



15 Click on Mask Sword, and ensure that Transfer mode is Normal, and Stencil layer is None. Now double-click on Composite Night Sky to see the fragment of untouched sword appear on top of the composited layers.



16 Click the Animate button, so we can animate the mask over the sword as it moves. Double-click Polygon Mask to reveal the mask outline. Double-click it again to reveal the mask points. Set feather to 4 or 5, and Edge Gradient to none.



17 Click back a few frames and drag the mask points to cover the sword. Jump back a few frames, repeat, and the software will work out what to do in between. During complex changes, such as half-way through the swing, you may need to animate each frame by hand.



18 Double-click Composite Night Sky, and run through with the mask in place to see how the sword remains the correct colour. You have now successfully created a night sky, without affecting the actor's skin or his sword. **CA-S**

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In the world of digital video, Pinnacle Systems has established itself as a mighty force. With exceptional NLEs such as *Edition DV*, stunning compositing and effects packages like *Commotion Pro* and DVD authoring tools such as *Impression DVD Pro*, the company has something for each and every aspiring or established DV artist.

This month, *Computer Arts Special* has teamed up with the company to offer one lucky reader the chance of winning Pinnacle's entire creative collection – a suite of five applications worth a total of £2125.

First up there's Pinnacle's new NLE – *Edition DV*. This features incredibly powerful colour correction tools, fast MPEG 1/2 encoding and the ability to print straight to DVD. *Edition DV* also features Containers – a novel way of simplifying your timeline-based editing tasks. These enable you to collapse tracks into one easy-to-manage clip.

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Then there's *Impression DVD-Pro*. This powerful application provides you with all the tools you need to

publish your footage to DVD. *Impression DVD-Pro* enables you to, among other things, assign many menus and sub-menus, add up to 32 subtitle tracks and eight independent audio streams to your DVDs. The package supports full motion animated menus – giving you the freedom to create professional looking DVDs in an instant.

Finally, there's *TitleDeko Pro* and *Hollywood FX Pro*. The former is a sophisticated titling package, offering almost unlimited control over your titles – it's sophisticated yet simple to use. *Hollywood FX Pro* enables you to add 3D transitions and effects to your footage. With over 300 effects, the ability to import 3D objects and map video to them, and 400 gradient effects it's an excellent tool for putting the finishing touches to your project.

As you can see, it's a top giveaway, and all you have to do to be in with a chance of winning is answer the simple question below and drop us a line.



For more about Pinnacle's products, head to [w] www.pinnaclesys.com.

The question

Pinnacle's compositing app is called *Commotion*, but which famous female singer released the single *Causing a Commotion* in September 1987?

To enter

Entering this competition is easy, simply click the Compo button from the *Computer Arts Special* CD interface and then enter *Pinnacle Systems* as the competition name.

Then select your answer and fill in all the other details and click Submit Entry. Don't worry if you're not online, you can still enter by post.

Just write your answer, name and address on a postcard and send it to:

Pinnacle Systems competition

Computer Arts Special,
29 Monmouth Street,
Bath, BA1 2DL.

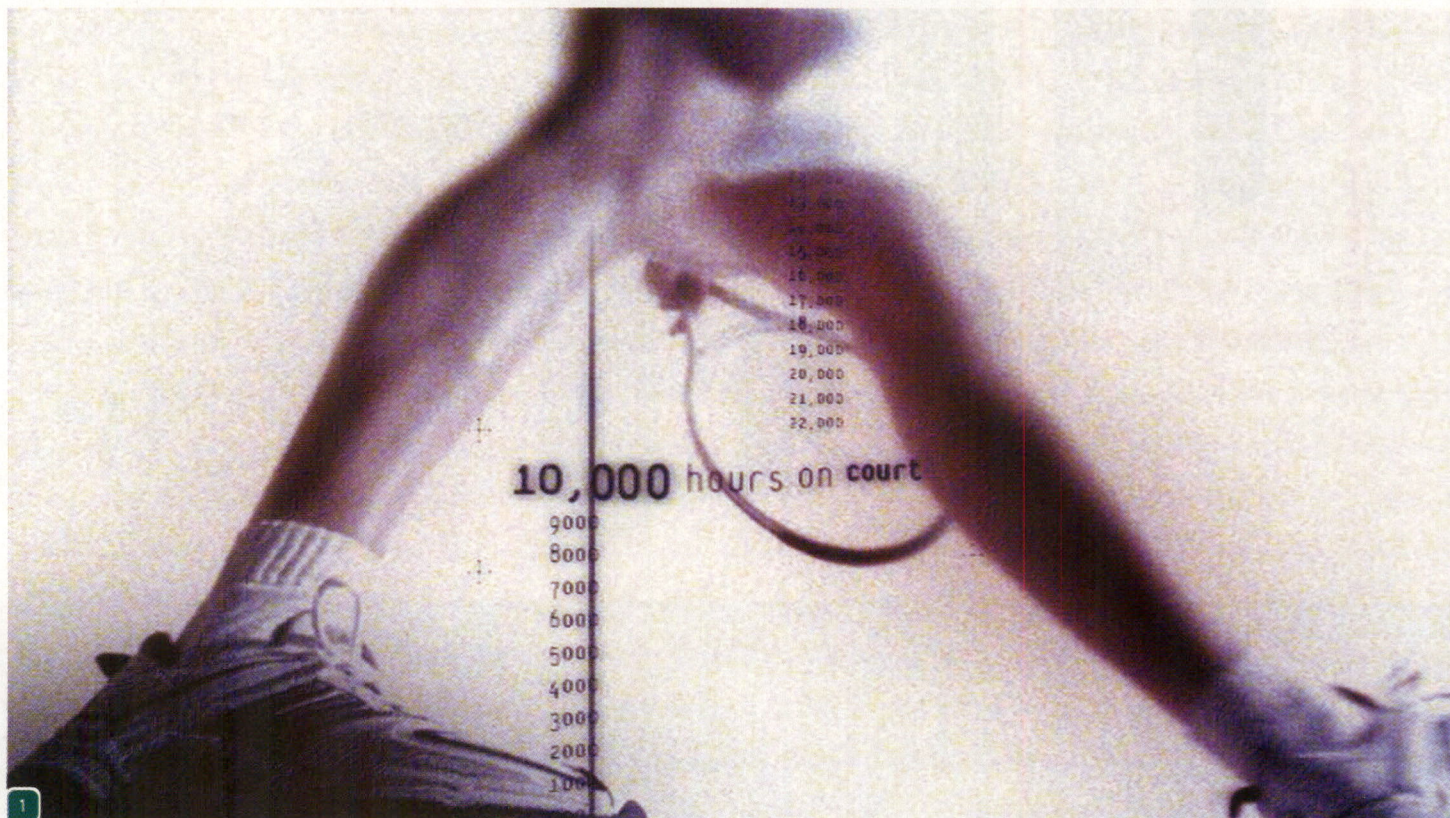
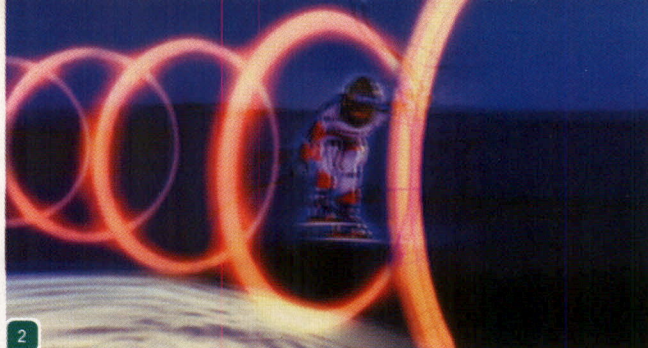
Include a phone number where you can be reached during the day.

The rules

The closing date is 13 June 2002. Employees of The Future Network, Pinnacle Systems and any of its agents or families may not enter the competition. One entry per reader. The editor's decision is final. No correspondence will be entered into and there is no cash alternative. No purchase necessary. **CA+S**

1. A Davies Cup trailer for BBC Sport. "Some of the footage was very grotty, so we decided to bleach out the white, make the colours strong and in your face, then treated everything with Sapphire scanlines before sending it to *inferno*," says Andy Collins, fire Operator for the BBC.

2. Budgets for programme intros have fallen drastically to an average of under £10,000. Viewer expectations have climbed, though, so bringing facilities in-house is one way broadcasters look at getting the most for their money.



BBC Post Production

"Ultimately, it's an ideas thing and not about how to press a particular button to make a plug-in work" say Andy Collins, fire Operator at the BBC, about the post-production process...

BBC Resources is a true giant on the UK broadcast industry scene, running everything from state-of-the-art outside broadcast trucks to costume departments. As part of it, BBC Post Production is equally massive, employing 550 people at various locations around the country and offering everything from format transfer to state-of-the-art effects suites. While it's the big new Discreet machines that take much of the glory — the company has one *inferno* and two *fire* suites — there's also plenty of work that goes through the BBC that gets produced via ordinary desktop workstations too. Partly, this is because of an increased interest in DV, with the children's department in particular leading the way in adopting the format (resulting in an increasing number of Avid Xpress DV licenses going into the corporation in turn). Partly, though, it's for

expediency too, as the sheer number of programmes requiring effects work on tight budget mushrooms. Dave Jervis, a digital effects supervisor at BBC Post Production, talks of producing effects for such diverse candidates as *Casualty* and *One Foot in the Grave* among others — chiefly 'invisible' effects such as effects rig removal. Jervis is a champion of the desktop, although he acknowledges that it's easier working on it knowing there are high-end systems just next door to deal with any shortcomings. "But these days there are increasingly less shortcomings I find," he says. "Just reading across my taskbar at the moment, I'm running *After Effects 5.5* and *Comotion 3.0*, one of the world's great rotoscoping programs. I use *Premiere* with a SDxstream card to get realtime full broadcast quality I/O, which is working directly to DigiBeta; I've also got

Elastic Reality, which is still very powerful and delivers just the right sort of manipulation for morphing." Add in the ubiquitous *Photoshop* and *Illustrator* combo, *Ultimate* and *Primatte* keying, plus *Cinema 4D* for 3D work and, while not quite an *Inferno* suite, you've got a powerful system capable of varied tasks. Exactly where work gets shunted in the department, though — desktop or high-end — depends a lot on speed. "If a job needs the client there, it's difficult to do it on the desktop systems as there's an inevitable trade-off between cost and speed," Jervis admits. Over in the *fire* suite, Andy Collins handles the fast turnaround material, usually for Creative Services (the Beeb department that handles promos) or Sport. "It's very tactile," he says of the Onyx2-driven box. "It responds instantly to what you're doing on the screen, so if you do have to let it go and render at the end of the

Fire machine

The *fire* machine was used for this transform from the French & Saunders *Lord of the Rings* spoof, and was completed in just two hours by Andy Collins. "We get asked all the time, 'Can't you do this in *After Effects*?'", he says. "The answer is usually 'Yes, but how long have you got?' Something that's typically ten minutes here will be an overnight job in *After Effects*."



3. An animated, painted explosion tracked and copied onto the original shot by Jervis in *After Effects*, a job complicated by a fair degree of camera shake in the original shoot. Motion blur was added to further dramatise the explosion.



*It's the flexibility we like which is the reason we'd use a box like this rather than *After Effects**



4. The original shot for the series promo for *Rolf on Art* showing greenscreen element and tracking markers. With a *fire* operative to advise, the shot was wrapped in around two and a half minutes. Once in *fire*, Discreet's motion trackers were used to track the camera move while the 5D *Brush* plug-in was used to treat the image and the various elements graded separately with different treatments.

day, at least you know exactly what it's going to look like. We can use it as a grader, we can use it as a compositor or whatever really. It's the flexibility we like and the speed, which is the main reason we'd use a box like this rather than *After Effects*."

Sessions booked on the machine can range from an hour to improve some material to a couple of days for a more complex promo, with Collins pointing out that client-attended sessions usually end up looking more polished, purely because the work can evolve further and through more iterations in a short space of time.

"Ultimately, it's an ideas thing," he says, "and not about how to press a particular button to make a plug-in work. It's about how many ideas have you got." **ca+s**

There is more information on BBC Post Production at www.bbcresources.co.uk.



5. A sequence taken from the *Generation Game*, showing that even light entertainment is using digital effects nowadays. Achieved in *After Effects* by Jervis, a glass shatter was first applied to Mr Blobby, with defocusses and various other techniques applied to soften the edges as it progressed.



Target formats

Why miss out on new formats for video delivery? Compressing a film to fit the Web, CD or DVD is easier than it looks...

Once upon a time, film makers had it easy. You made a movie and, if you were lucky, it would appear in a theatre on 35mm Academy celluloid: one format, and one method of viewing the movie. DV and the Internet have given film makers a double-edged sword in that a film is more likely to get seen bypassing theatres. But the payoff is having to grapple with an increasing number of ways it can be seen: the Web, VHS, DVD or CD, aside from

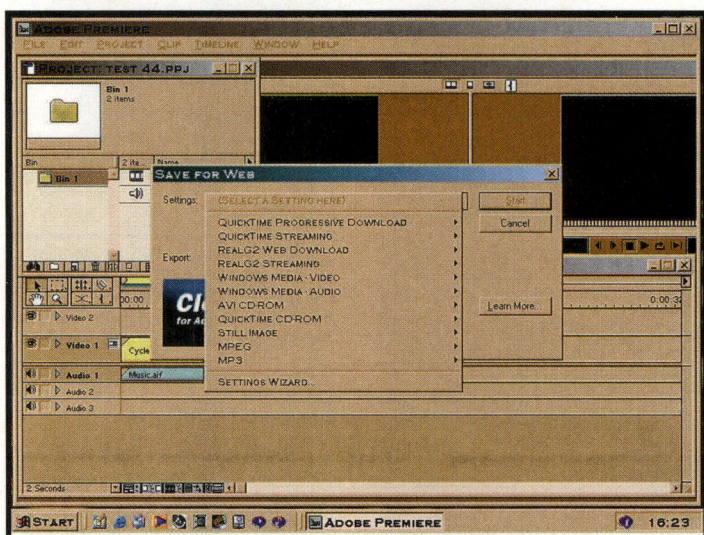
conventional broadcasting. Getting a film to its audience now asks the film maker to think seriously about what happens as it passes down one of these routes. How does it affect the film, and how can you avoid the problems it throws up? The issue at the centre of each format is data compression: removing data to enable the film to play at an acceptable rate or within acceptable disc space.

Choosing the way your audience is going to see your film needs to be a



In this news report, little compression is needed and it can be delivered live with few ill-effects on the image, mainly because of the absence of movement in the background. This presents perfect compression conditions.

Illustration: Kevin Davison [w] megatron01@btopenworld.com



In *cleanerEZ*, you can select from a full range of target formats. Embedding this into *Premiere 6* is by far the most straightforward way to encode direct from the editing stage.

decision you take early on in pre-production. Most films will be seen on more than one format, but decide first which format is going to be the primary method of viewing for your film. Is it going to the Web first, then onto CD-ROM? Or maybe DVD first with parts of it on the Web? Since all formats are going to require leaving bits of the film out, it is worth knowing in advance how each is going to react to your movie.

What is compression?

With data compression, certain parts of the video image and sound are removed, but hopefully this is done so skillfully that it doesn't detract from the viewing experience. This is going to hit four essential areas: frame rate, colour resolution, picture clarity and sound quality. The actual process of choosing which bits of data you can live without is down to the codec — compressor/decompressor — an algorithm capable of deselecting data intelligently. But why leave it all up to the codec? You can control part of this process while in the planning and shooting stages.

The effects of compression can be reduced and utilised if you anticipate them while planning and shooting the movie. If you want to aim for a film that is resilient to high levels of compression — for the Web or CD — the key is pixel and temporal redundancy, a process whereby certain parts of a frame are removed if they are repeated within a group of frames. It comes down to the need to keep certain parts of the frame static and to avoid excess action or camera movement. Bear this in mind while filming and the end-user will see a better-looking film.

There are five points to think about.

1. Avoid large expanses of bright, highly saturated or hot colours like white, blues and yellows. Use earthy colours.
2. Keep movement to a minimum — for fast action you will need to use a high frame rate, sacrificing picture quality in the process. When compressing a film it's always a toss-up between the two.
3. Use a static background as much as possible: this enables the codec to remove unimportant data representing the background while maintaining a good quality foreground.
4. Decide how important sound is to the film: if possible, allow compression by using clear sound, avoiding complex layers or stereo.
5. Finally, when editing, keep effects to a minimum and avoid transitions wherever possible — since no two frames are alike during the transition they eat up data.

Codecs will help you. Using the right codec can make the difference between a film which gets seen and one which does not. It is the vehicle which carries the film to its audience and you have to completely trust that it's making the smallest possible pile of data look good.

In deciding which codec is right for your film, it's a play-off between three competing criteria:

- compression level
- quality of the compressed video
- compression/decompression speed

Good codec guide

Cinepak

A leading codec and new versions enable you to customise settings, avoiding data spikes — sudden increases in data which cause a film to pause in playing. Cinepak is ideal for Web movies and for CD-ROM. Its widespread integration in the main Web players make it a safe choice.

Sorenson

Not cheap but the best all-rounder (Sorenson Developer is £350). Its range of settings is unrivalled and it out-performs others by far, with default settings for speedy use. It alters its power needs according to the end-user's PC, increasing compression as necessary.

Real G2

The leading codec for Web work, it is not the first choice for other formats. It makes buffering smoother by keeping data rates constant and therefore makes better viewing.

H.263

First choice for video-conferencing or straight-to-camera talking. A good solution also for educational work on CD or the Web.

MPEG 1

This a relatively low resolution video sequence of about 352x240 frames by 30 frames/s, but high-quality audio. The images are in colour, but converted to YUV space, and the two chrominance channels (U and V) are decimated further to 176x120 pixels.

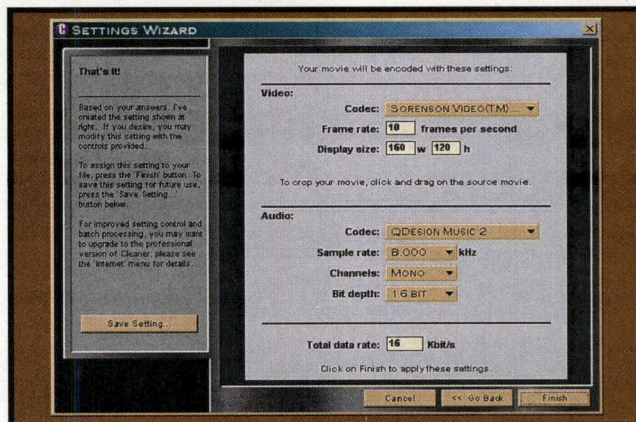
MPEG 2

MPEG 2 is similar to MPEG 1, but includes extensions to cover a wider range of apps. The primary application targeted during the MPEG 2 definition process was the all-digital transmission of broadcast TV quality video at coded bitrates between 4 and 9 Mbit/sec.

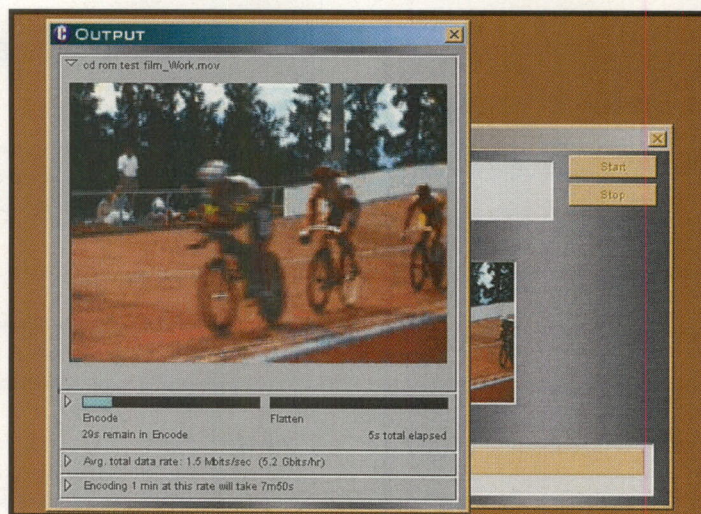
MPEG 4

MPEG 4 targets the very low bitrate apps defined loosely as having sampling dimensions up to 176x144x10Hz and coded bitrates between 4800 and 64,000 bits/sec. This would be used in low bitrate videophones over analog telephone lines.

For best results overall, try Discreet's *cleaner* software, a good start to DIY encoding which incorporates the best codecs.



An example of a Web movie compressed using the Sorenson codec, embedded in *cleanerEZ*. A typical screen size of 160x120 is given at 10 frames per second, with a total delivery of 16kb/s.



This highly compressed sports shot was intended for CD-ROM, with a data rate of only 1.5Mb/s. To get this level of compression takes time – note that it states it will take seven minutes to encode every minute of video.

These three are in a kind of triangle, and whichever one dominates depends on the end-user format: for instance, a high level of compression at the expense of quality for the Web; a high level of quality at the expense of compression for DVD. Look at the box on the previous page for details on which codec suits which kind of film.

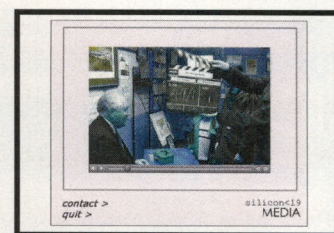
There are two basic methods of compression: intraframe, which looks at individual frame data; and interframe, which compares groups of frames.

Interframe offers the most scope for quality compression. Since very little actually changes from one frame to the next, we can look at a group of frames and use data from a previous frame to describe parts of future frames, should certain parts of it crop

up again. So, several frames are analysed – the fewer the changes within this fraction of a second, the less data needed to describe it, hence all the talk earlier of ways to shoot the film with this in mind.

Encoding methods

Starting with the simplest sledgehammer codec algorithm, difference coding is a process in which every frame is compared with the one before, and only the pixels that have changed significantly are updated, while data for the rest is removed. The problem is in determining what “significantly” means. How different does a pixel have to be before it is renewed? It also takes a lot of power to analyse every pixel. One of the ways to



In this CD-ROM – a showreel for Silicon 19 Media – the image is at an ideal size for fast movement in the content. To keep compression lower, parts of the film are still, showing text.

get round this is block-based difference coding.

Using block-based difference coding, pixels are analysed in groups, often 8x8 pixels in size. It takes far fewer bits to assess 300 blocks of 8x8 pixels than it does 19,200 pixels in a typical 160x120 frame. It sounds like a good idea but this too has drawbacks. If pixels are updated together, some will have been updated unnecessarily and, in compression terms, renewing a pixel that didn't need it is just wasting bits. But a far bigger problem is that larger blocks than 8x8 pixels may have to be used to enable greater compression, and this leads to sharp discontinuities in the image – a visibly blocky effect which may not affect talking heads videos very much, but will impact on anything more adventurous. The answer is motion compensation.

Motion compensation

Probably the most efficient way of compressing video data is arising out of MPEG (Motion Picture Experts Group) technology. Central to MPEG's success is its ability to predict and

Calculating data rates

Before you compress a film, you need to work out how big it is. The space it has to squeeze into is the modem connection or the CD/DVD size.

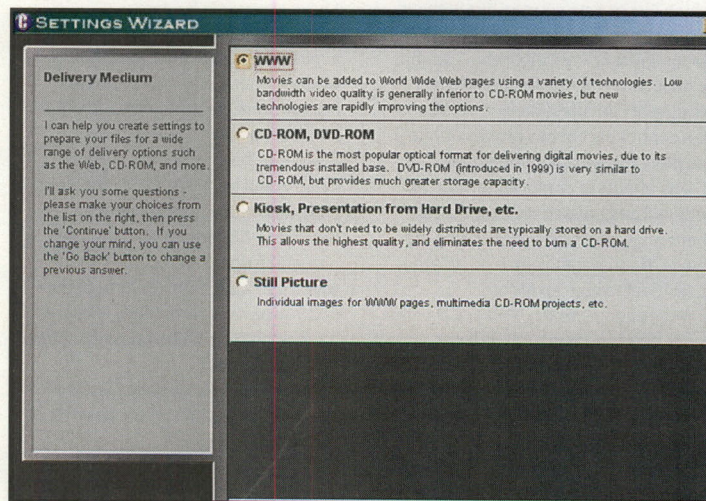
When compressing a film for any format, first work out the size in KB of one frame of uncompressed video, and then one second of the same footage, and then see how compression affects the overall size of the file. Follow these steps:

1. For the size of one frame of uncompressed video use the formula:

Pixel width x pixel height x bit depth / 8 / 1024 = frame size (where 8 is an 8-bit byte and 1024 is the total bytes in a kilobyte)

2. Find the file size of one second by multiplying frame size by number of frames per second of video (25 in UK, 30 in USA).

3. To work out how compression will affect your film, divide the size of one second of uncompressed video by the compression ratio. For example, a 46MB file on a 10:1 compression ratio would squeeze down to 2.7MB, and the data rate would be 2.7MB/second.



Always use the settings wizard in *cleanerEZ*. It offers a partial DIY encoding of movies for CD, DVD and the Web. The wizard takes you through compression stages step-by-step.



This CNN news report operates with difficulty due to the high action content, even at this small screen size. The image is clearly starting to look blocky, at a modest size of 56.6kb/s.

code motion, and its influence can be seen in most new codecs. It works like this: instead of looking at one frame compared to the last, a whole group of frames are analysed, called a Group of Pictures (GOP).

A keyframe is set at the start of the group — known as an I-frame — and until the next keyframe the following frames are divided into P-frames and B-frames. The P-frames are looking for differences between themselves and the previous I- or P- frame while the B-frames do something more interesting: they predict motion in the next frame. It looks at the differences in the position of objects in two frames and predicts where the object will be in the third, using a motion vector.

Compression is achieved because it takes less data to describe a motion vector than it does to describe the actual pixels themselves. The art is in working out where to place the keyframes, for instance, at scene changes where frame differences are quite large.

DIY compression

Every film is different and needs to be encoded individually. It's no good offering the same codec for every film you make — decide on one that is based purely on the content of the film. Your film deserves a bespoke method of compression, and achieving this is actually not as complicated as it primarily sounds.

Compressing a film is more of an art than a science. You should start by trying a codec which addresses some of your needs. Look at the codec guide on page 67 to assess which one looks most promising. Then start encoding small clips, looking for scenes that have a good mix of what your film contains, such as movement, colour and sound. Play back your movie to see how your clips look. Use the settings wizard in

the codec software to run through in fine detail what you do and don't need.

DVD is encoded using MPEG 2 technology, offering full frame rate picture quality up to HDTV standards of 1920x1152 pixels. It presents far fewer difficult choices than for other formats, but the hardware is expensive. But with DVD-writing currently entering the consumer-level market with the iMac, it surely cannot be too long before this option comes down in price.

The future

Many will say that the future lies with MPEG 4, a compression method which addresses the needs of the Internet and interactive TV. MPEG's rivals in the proprietary codec market have little to fear at present but it is MPEG 4's ability to deliver multimedia which sets it apart including music, images, text, sprites and textures as well as video.

There are several potential markets for MPEG 4. At the October 2001 Streaming Media Europe Show in London, an MPEG 4 camera was unveiled which is capable of sending ready-compressed images direct to a Web broadcaster, dramatically improving live streaming for news stations and sports events.

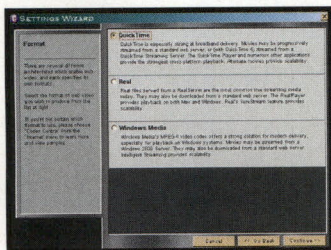
The gaming market is also keen to see it take hold as it offers the chance to evolve networked, multi-user games — something that failed to materialise with WAP. Broadcasters are interested too because better encoding will allow more channels within a given bandwidth and, with plans for digital TV limping slowly onwards, the industry needs what MPEG 4 can offer. **ca-s**



Expertise provided by Russell Evans. You can contact Russell at [e]r.evans-k@virgin.net.

Top 10 tips for encoding

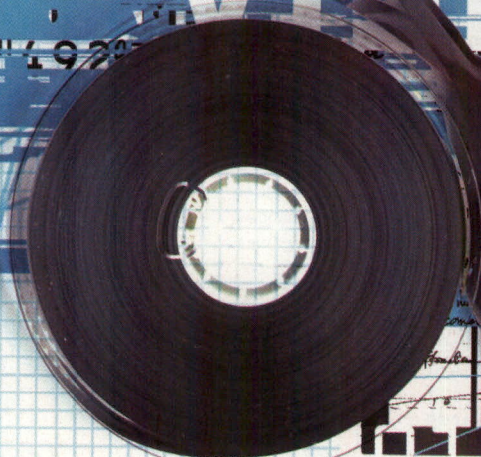
1. Avoid recompression: do it once only to avoid artefacts (disturbing visible effects).
2. Codecs are for rendering, not capturing. Always capture at maximum data rate.
3. Don't expect any codec to give smooth video for the Web, at least until (or if) broadband takes off.
4. For Web films, a good compression option is 10fps, 160x120 pixel screen, 16-bit sound, using the Sorenson codec.
5. When encoding for the Web, accommodate both 56.6kbps and 28.8kbps modems by aiming somewhere in the middle, around 35 to 40kbps. Buffering speeds up data so that slower modems can catch up.
6. For CD-ROM, use Cinepak codec, starting with a setting of double speed (or 2x), with QuickTime as the playing format. Unlike MPEG, QuickTime still works on slower machines.
7. Always play back and test on a minimum target platform (pre-G3 and pre-PIII may have problems).
8. Always use unique compression settings for each film. *cleanerEZ* (Discreet) delivers an easy way into this.
9. For unpredictable films, where content varies, use a peak data rate to limit data at complex points and avoid overloading the end-user's processor.
10. For DVD, MPEG 4 offers similar quality to MPEG 2 but at an eleventh of the size.



cleanerEZ enables you to select which player the movie is encoded for. QuickTime and Real are the safest options for the majority of movies.

DIGITAL VIDEO

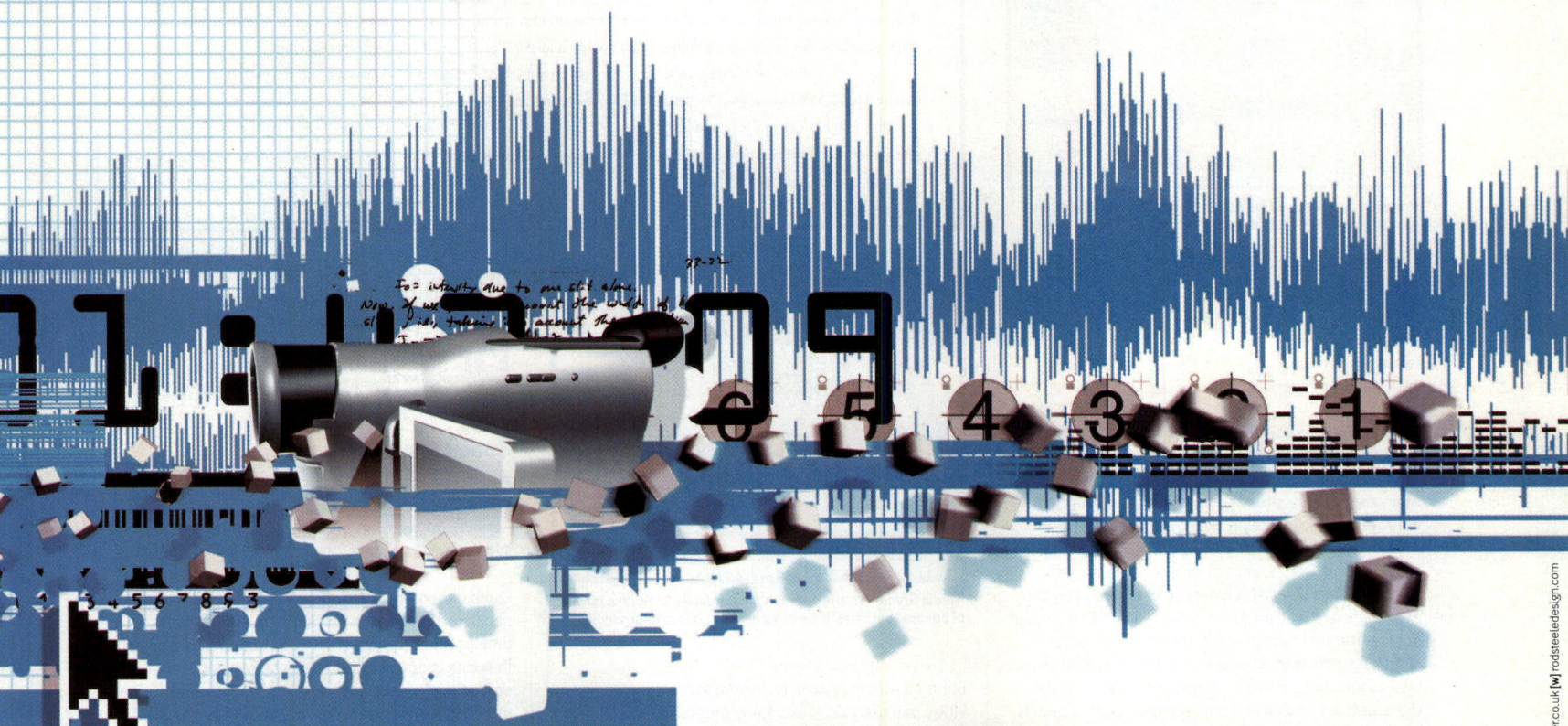
2113011923



When we discussed the Tokyo's...
two slits, we assume that the slits have...
and we obtained:
 $I(\theta) = I_0 \cos^2\left(\frac{\pi d \sin \theta}{\lambda}\right)$
where $d = \frac{2\pi}{k} \sin \theta$

01:43:19

8 0 2 3 4 5 6 7 9 3



Essential DV software

There are dozens of DV editing packages available, as well as an increasing number of compositors and other tools. We've rounded up some of the most significant post-production tools, ranging from budget range to the more sophisticated...

This year, DVD is beginning to flower as an authoring format and the costs involved are dropping rapidly (the cheapest DVD writers are now available for around £300).

Although, in general, the authoring tools are more widely available and more competitively priced than the hardware, with blank DVDs costing around £10 each which is still rather pricey.

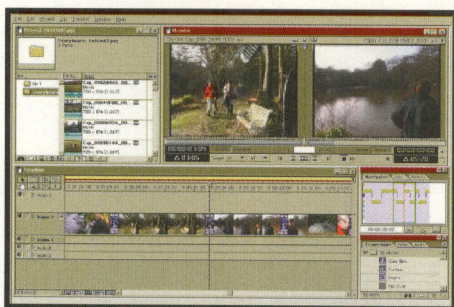
On the effects side, the widespread adoption of the *After Effects* format for effects filters has led to a wider and wider range of new plug-ins coming onto the market as effects workers do their best to compete with each other with more and more innovative styles.

However, the basis of a good post-production suite is the video editor itself, and the tools available are getting increasingly sophisticated and mature. Prices still range from about £50 to several thousands, but the gap is narrowing in terms of price and features as lower-end products compete to provide more functionality, whereas pricier packages struggle to

produce significant upgrades — many are now concentrating on becoming cheaper rather than significantly more powerful.

The latest trend is that instead of throwing in an editing package free with a capture card, it's quite common now to get the capture card free with your editor. Even low-end products like MGI's *Videowave* can be bought at around £90 with a FireWire card thrown in. However, if you're still using an analogue camcorder, you'll need to pay a lot more for your capture hardware.

Processors are now nearly fast enough to provide decent real-time effects rendering, and editors are gearing up to match them. More and more editors are rendering effects and transitions on-the-fly rather than waiting to be told to process by the user, which means that you'll get dropped frames and poor quality images as you play back video. As processors continue to get faster and faster, this problem is slowly slipping away. ►



Premiere sets the pace for video editing packages. It's robust, easy to get on with, and well up to the challenge of any project.

Premiere 6

Price £480

Company Adobe

[w] www.adobe.com

System PC and Mac

Premiere is probably the most widely used editor in the marketplace. It has established itself with a wide range of solid features, as well as some neat innovations and a strong set of effects tools for both video and audio work.

The Storyboard window (new in version 6) makes rough-cuts a breeze, and some well implemented trimming tools offer a high degree of control. You can even put together L and J cuts (where sound and image cut at different moments) with the minimum of fuss.

Strong links with *After Effects* and *Photoshop* as well as the ability to use standard *AE* plug-ins make this a well connected and expandable editor. Sound is handled well in *Premiere*. Although there's no live audio recording available, graphic and parametric equalisers are included as standard — very useful when reducing background noise from audio recorded using a camcorder's built-in microphone. There's also a good audio mixer.

Output covers the full range of media types from MPEG to DV, to Internet formats (which are very well covered by the integration of *Cleaner EZ*).



Media Studio Pro 6.5

Price £349

Company Ulead

[w] www.ulead.co.uk

System PC

Media Studio is a very competent editor. It's quick to learn, and enables you to do most editing jobs quickly. It's got semi-real-time previews which attempt to play back your effects and transitions in the monitor window without rendering (although this results in dropped frames and a reduction in quality if your computer can't handle the pace).

The effects and transitions are as you'd expect in its price range, with all the usual dissolves and wipes to hand. There's also a Storyboard editor, similar to *Premiere 6*'s, and the ability to record live voiceovers.

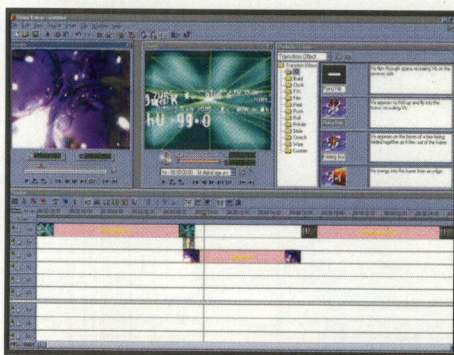
A rather good external titling program, a basic DVD authoring package, and a separate audio editor are

Real time

Real-time effects enable you to place any effect onto any clip, or collection of clips, on the timeline so they'll play back when you press Play. Instantly, smoothly, at full quality, and at 25 (or 30 for NTSC) frames per second.

Right now, true real-time for all effects doesn't exist in anything but the most expensive edit suites (but, at the time of writing, NewTek's long-awaited *Video Toaster 2* looks promising). So how come so many packages listed here advertise it?

They fudge it. Cheaper systems hand your CPU the effects and tell it to get on and play it back. If your computer is fast enough for it, you get reasonable playback. If not, you get lost frames and reduced quality. More expensive systems, or those based on specialised hardware, have limited effects pre-programmed to render, but for others, you'll have to wait.



Media Studio Pro offers more than just an editor. With a range of bundled software, it's a complete post-production studio.

bundled with the package. In addition, a very strong video painting and rotoscoping program is also included. This enables you to treat each frame of a video as a still image which you can doctor with a range of natural media painting materials, and *Photoshop*-style editing tools.

Ulead's *Media Studio Pro* is not just an editor — it's also a complete set of post-production tools, and a video painting program that offers a degree of control over your images which some of the other editors tested don't have.



Videowave 5 DV Suite

Price £89.99

Company MGI [t] 0800 973 830

[w] www.mgieurope.com

System PC

Videowave is one of the cheapest editors on the market. It's quick to pick up, looks and feels like a videogame, and offers basic editing tools, simple effects, a rather neat little DVD authoring program, and a free FireWire card.

Even without knowledge of editing, you'll be up and running with *Videowave* in a few minutes and, although the package won't stretch easily to accommodate the imaginative editor, it does offer some quick fixes to various editing challenges like scrolling text, transitions, and capture.

The lack of a timeline makes anything but the most basic cut impossible, and prevents you from

effectively handling audio. However, the package comes with a free DV capture card, and a disk of sound effects and graphical sequences.



Speed Razor 2000X

Price £695

Company InSync

[w] www.in-sync.com

System PC

Quite expensive, but also very powerful, this is a package aimed at the professional editor. It has real-time processing of certain transitions and effects, but the work is done entirely by the computer's processor, so it's highly dependent on the power of your PC. The effects cover a good range, containing all the usual tools, but adding a better than average chromakey tool, and 2D motion tracking.

Audio tools are limited in this package, however, with not even a graphic equaliser, and *Speed Razor*'s native file systems make transferring video to and from other applications (compositing and effects packages for example) more awkward than it needs to be.

A robust set of cutting and trimming tools and configurable keyboard shortcuts mean that an experienced user can zip through complex jobs.



Xpress DV 2

Price £1200

Company Avid

[w] www.avid.com

System PC

Avid has long been the name at the forefront of desktop video editing. Its high-end systems dominate the broadcast arena. One of *Xpress DV*'s best features is that it looks and feels like other systems, and lets you transfer edits back and forth between them, offering a low-cost addition to the Avid suite.

The layout is clear and well put together, but the timeline lacks interactivity — you can't just click on it to change the length of a shot, move it, or add an effect. This forces you to use the trimming window to fine tune your edits, and the bins to set the initial in and out

points. Most packages enable this, but also give you the option of working on the timeline.

Xpress DV's audio and video tools, as well as its capture and output functions, have been refined and tuned to the needs of professional editors. But, its price means that many of those using it will be those for whom editing makes up only a part of their work.



Edition

Price £499

Company Pinnacle

[w] www.pinnaclesys.com

System PC

Edition is a new badge for a strong system — It started life as the software behind Fast's turnkey system, *Purple*, and was then released at £700 as *FastStudio DV3*. Now with Fast's takeover by rivals Pinnacle, *FastStudio* has become *Edition*, and is being pitched against the likes of *Premiere*.

Edition is a well tested editor with a clean, simple interface and a highly professional feel. It comes with a free FireWire capture card, and a strong, yet friendly titling add-on which offers a number of preset type styles, as well as tools for creating your own.

There's no real-time effects rendering, but *Edition* is very clever at rendering automatically in the background, so simple effects are ready to play pretty much as soon as you lay them onto the timeline.

After *Effects* filters are supported and the package contains *TitleDeko Pro*, *Hollywood FX*, Impression's *DVD Pro*, and a FireWire capture card.



MoviePack 3

Price £510

Company AIST

[w] www.aist.com

System PC

MoviePack leans more towards effects than video editing. Its ability to create custom transitions, and 3D effects is pretty impressive. With a separate timeline and timegraph view for editing effects' keyframes, you can animate video clips around the screen, distort them in dozens of different ways, and give even the duller of footage impact and style.

In addition, you can do it pseudo-real-time. In other words, depending on your PC, and the complexity of your effects, the package will try to play back your project, dropping frames, or reducing image quality where things become difficult.

Playback isn't really good enough to enable you to do tight basic editing, and the fundamental tools of the editor are quite poor, making it difficult to cut action or dialogue in anything but the most primitive ways. The result is an editor that's best suited to creating short clips (for example, for the Net), or snazzy slideshows.



MoviePack is best suited to effects work, but also contains some decent editing tools too.

Final Cut Pro 3

Price £829

Company Apple

[w] www.apple.com

System Mac

Final Cut Pro has a long history on the Mac. Now in version 3, it's got realtime effects (but only on a G4), and an Offline RT format which enables you to edit at low quality, saving masses of disk-space (you can automatically recapture later at full DV resolution).

A voiceover recorder, and excellent colour correction tools are two highlights of *FCP3*. Although audio isn't generally well supported within the package (there's a decent audio editor bundled with it, but the work would have been better done on the timeline).

Overall, for Mac users, this is a strong contender, and plays well against *Premiere*, and the like.

Combined with a G4 for real-time work, *Final Cut Pro* can even give high-end systems a run for their money.



Vegas Video 3

Price \$479 or \$419 (download)

Company SCV London [t] 020 7923 1892

[w] www.sonicfoundry.com

System PC

This is a mid-range editor with some surprising extras. You can play back in slow-motion from the timeline so it's easy to place a cut just where you want it, and an auto crossfade function means that you can set up a simple audio and video dissolve just by overlapping two clips.

Effects and transitions are a little sparse here, but you can add to them with plug-ins. In addition, they can either be rendered to produce full motion playback, or played semi-real-time with the quality, and frame-rate degrading dependent on the complexity of the effect.

As you'd expect from audio software developer, Sonic Foundry, *Vegas Video* has a keen set of sound tools. Everything you're likely to need for noise reduction and mixing is there, along with the ability to record a soundtrack, such as a narration, or incidental music, while your project is playing in the timeline so you can get the timing perfect.



Pinnacle Studio 7

Price £79.99

Company Pinnacle

[w] www.pinnaclesys.com

System PC

A neat little editor with a very well thought out feature set, *Pinnacle Studio 7* is well tuned to its chosen marketplace of home video makers and semi-professional users.

You can capture at low quality (about three hours to a gigabyte). In addition, clever rendering means the package will only recapture what it needs for the final cut, and will only render out those parts of the sequence which have effects applied — so more disk space is saved on the final render. Together, these tools make *Studio 7* one of the only packages capable of cutting a wedding video, or a two-hour performance comfortably on a normal PC.

Robust basic tools will get you working immediately, and a voiceover tool along with a live audio mixer and a stock music generator mean that sound is well covered.



TitleDeko Pro

Price \$249

Company Pinnacle

[w] www.pinnaclesys.com

System PC

The basic version of *TitleDeko* comes free with some editing packages. This package produces professional-looking titles, and enables you to pick from a range of presets to create basic scrolling and crawling animation. ►

DVD

The thing about DVD authoring is that it's really not that difficult. DVD productions aren't as flexible right now, as other multimedia presentations. The only way DVDs score over them is that they can be played in domestic equipment.

DVD requires that your video is compressed in the MPEG 2 format (check that your editor can produce this, or that you can get a plug-in or conversion package to produce MPEG 2). You'll also need to create a front end to enable viewers to select and play your video clips. This is done with a dedicated package, which can be bought at a reasonable price.

The cost of DVD media is still rather high, but it's dropping. In the meantime, you can use a CD writer to create DVD style presentations that will play back on many (but not all) DVD players. Of course, CDs can hold much less information, so your productions will need to be lower quality, and/or shorter.

If you need more, the pro version of the package offers plenty. Much greater control is given over typefaces and lettering style with the ability to customise type, and to import your own graphics and logos which can then be given effects such as shadow, and glow.

You can also write text along a user-defined curve — in other words, text can be made to scroll onto the screen, bending around objects or graphics in shot.



TitleDeko Pro – a titling package with the ability to put together effective styles and animations very quickly.

Masking

One of the most important things to look for in an effects package is its ability to create and work with masks and mattes...

A mask is a shape drawn onto your video image which acts as a cut-out, enabling you to exclude or include parts of the frame. For example, you might mask out just the sky in a landscape shot so that you can replace it with a better exposed image, or you might create an animated mask around an actor enabling you to apply an effect only to them, or animate a computer generated object to move between the actor and the background.

A matte performs the same function, but is a greyscale image (or video clip) describing which parts of the frame should be visible, which should be transparent, and which should be semi-transparent.

It doesn't matter how many weird and wonderful effects filters your program contains, if you can't control which parts of the screen are affected by them. With good masking and matte tools, you can be as specific as you like.

Look for edge feathering tools, easy animation of spline points, motion tracking for spline points, expansion and contraction tools, variable opacities for mattes, and depth mattes.

Impression DVD Pro

Price £349

Company Pinnacle

[w] www.pinnaclesys.com

System PC

A friendly, but professional DVD authoring package. Impression *DVD Pro* supports up to eight alternate audio tracks and 32 subtitle tracks — so you can produce as many variations on your production as you're likely to need. You can even add an extra video track so the viewer can jump between angles, or produce picture-in-picture displays.

It's clearly designed with the video editor in mind, and is based on a familiar timeline, so it shouldn't be too hard to make the jump into DVD authoring. Creating menus (as many as you like) can be done very quickly, and you have access to all the options a DVD can give including animated menus.

Movie Factory

Price \$44

Company Ulead

[w] www.ulead.com

System PC

Movie Factory is one of the cheapest DVD authoring packages around. A wizard-style interface leads you by-hand through the creation of your production, but doesn't give you much opportunity to be innovative.

There are a range of preset styles for menus and buttons that enable you to create the interactive side of your presentation without designing a single graphic (although, if you're creating anything but a home video or a business presentation, you'll probably want to).

Most DVDs aren't really that sophisticated, and if you don't need to produce complex subtitling, hidden events, and multiple language versions, you'll probably find a package like this can do the job as well as any.

DVDit Professional Edition 2.5

Price \$599

Company Computers Unlimited [t] 020 8358 5857

[w] www.dvdit.com

System PC

A DVD authoring package which looks pleasant and inviting enough, but doesn't really compete on price

with the rest of the marketplace. The look of the product is very tactile and toy-like, offering easy access and drag-and-drop interactivity.

The tools are smooth and work well, enabling you to put together slick presentations quickly, but there are problems with laying out menu screens accurately. The package will automatically recompress your video from QuickTime or AVI formats into DVD-compliant MPEG 2 but once done, scanning through the video to locate your chapter points can be uncomfortable.

All in all, *DVDit PE* isn't bad, but it is overpriced. Take a look at some of the other packages in the *DVDit* range which cost substantially less, but offer almost the same functions.



Edit 6.5

Price £5695

Company Discreet

[w] www.discreet.com

System PC and Mac

Discreet's high-powered editor is well known in the broadcast industry. Its reputation is strong, and it's right up there with Avid and Media100.

As well as the standard editing features (all very well put together), *Edit* features multi-camera editing as standard — in other words, you can capture several shots of an event from different cameras, then play through them as live, creating your edit by switching from one camera to another.

There's good real-time rendering of effects, transitions and titles, but you'll need a very specific system to run the package properly.

Lower end editors are catching up with it in terms of features, and making the product less attractive at its current price, but it's still a good bet for a high-specification edit suite.

CTP 1.2

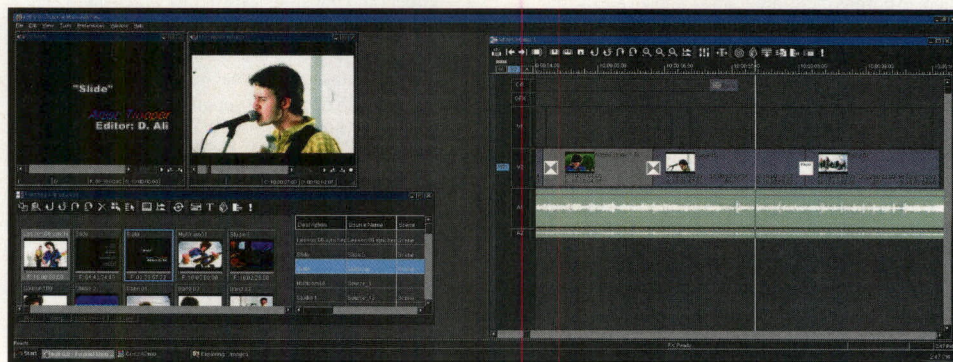
Price £2200

Company Crater Software Inc

[w] www.cratersoftware.com

System PC and Mac

If your video work includes graphical or drawn animation, you might want to take a look at a



Edit is a powerful system, but it's being rapidly caught up by newer and cheaper rivals.

specialised animation package such as CTP. This is a 2D animator designed primarily for cartoon artists. It lets you arrange, loop, and composite characters and scenes making the best use of your artwork.

You can capture from a video source, or create animations from scanned stills, then composite the shots together to produce complex scenes. You can have up to 200 layers of audio and visual images at a time, and use cameras (which can themselves be animated) to set up your shots very much as you would in a 3D package. The painting and colour fill tools enable you to paint your animation cells quickly and easily.

Video Studio 6

Price \$99

Company Ulead

[w] www.ulead.com

System PC

Definitely aimed at the budget or home user, *Video Studio 6* combines simple tools with the appearance of a toy. However, it's quite up to the task of producing clips or simple programmes.

The package works like a wizard, using a tabbed display to take you through the various stages of production from capture through to storyboarding, editing, titling, voiceover, and finally output.

You really can't go wrong on *Video Studio*, and all the transitions and effects work in real time (at least they do on the programme's small monitor screen). However, you can't really stretch yourself either. It's better at fine edits than it's rival MGI *Videowave*, but if you're thinking of buying it, take a look at *EditStudio*.



EditStudio 3

Price £59 (download), £79 (boxed)

Company Pure Motion

[w] www.puremotion.com

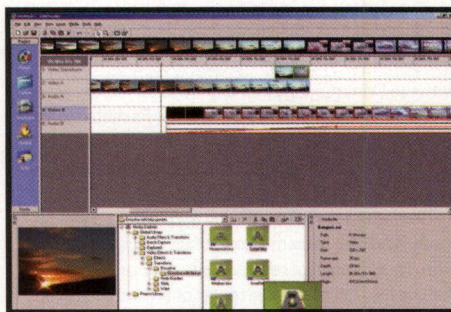
System PC

This cheap and cheerful editor punches way above its weight in terms of providing quality tools and high usability. Nobody would claim it rivals Avid, but *EditStudio* gives you enough basic editing capability to get you going, and enable you to work at full digital video quality.

There are enough transitions to get you through any edit, and you can add standard plug-in effects, wipes and dissolves to extend the package's range. Trimming and fine-editing tools are a bit thin on the ground, but version 3 adds a new Storyboard window, for quickly creating rough-cuts.

This is a neat, no-frills editor, which doesn't offer gimmicks, but won't limit your creativity either.

You can find the full version of *EditStudio 1.5* on the cover CD. To upgrade to version 3, see the special offer on page 25.



EditStudio 3 has a no-nonsense approach that makes it capable of producing professional looking edits.

RealViz Image Processing Factory

Price Around: 11,110 euros but all products are available separately

Company Realviz [t] 01727 810 203

[w] www.realviz.com

System PC

This is a suite of four quite different high-end effects utilities which are available as a bundle or separately.

Matchmover is a 3D motion tracking tool that can deduce the exact motion of a camera in 3D space from the video image. You can use this information to match 3D effects with moving video shots.

Stitcher enables you to attach multiple still images together to create full 360 degree panoramas (useful in 3D and effects work).

Retimer speeds up or slows down video producing smooth motion at any speed by using morphing technology to create new intermediate frames.

Image Modeller can produce accurate 3D models of real world objects from a few photos. It's slow and cumbersome to work with, but produces good results.



Multicam

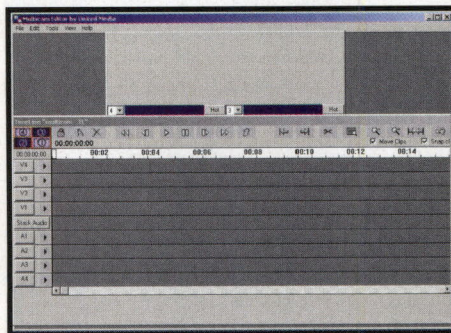
Price \$599

Company United Media Inc

[w] www.unitedmediainc.com

System PC

Multicam is a package designed to work with Adobe *Premiere*. It enables you to simulate the effect of being a vision mixer, cutting a multiple camera programme



Using *Multicam* and *Premiere*, you can cut as-live between up to four video sources.

live by switching from one camera to another. You'll need to pre-record and capture all your angles before you start, but once you've done that, you can watch the output of up to four cameras at a time, and flick between them at the touch of a button. Once your edit is created, you can bring it into *Premiere*, and work more finely on it, adding transitions, graphics, and effects, and fine-tuning your edits.

The main downside of *Multicam* is that it only works with certain capture cards: the Pinnacle Pro-ONE, DV500Plus, Matrox RT2500, RT2000, DigiSuite LX, DigiSuite LE, DigiSuite DTV and DigiSuite Full hardware.



Plug-in Galaxy

Price \$99

Company Harold Heim

[w] www.thepluginsite.com

System PC and Mac

Plug-in Galaxy is a bundle of filters designed for *After Effects* (and compatible packages). Its 120 different effects break down into 20 filters — each of which has a set of animatable controls.

On the face of it, there's little to connect all these filters together. They create wildly different effects that range from hypnotic and psychedelic background generators to filters for making your shot look as though it's been taken through frosted glass or liquid metal.

There are lighting effects for making daylight appear like dusk, warp effects for distorting the image, and other filters for creating radial blur effects.

All in all, *Plug-in Galaxy* is a rather eclectic collection, but there's bound to be something in there for everyone.



cleaner 5

Price £419

Company Discreet

[w] www.discreet.com

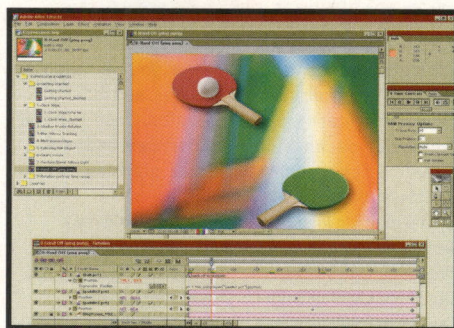
System PC and Mac

This is an essential product for anyone converting video from one format to another, *cleaner 5* produces excellent results for CD, video and the Internet. With it, you can convert from virtually any video format to any other, and expect to maintain a high quality image — even where bandwidth is extremely small.

A set of simple-to-use wizards guide you through the process of rendering media for any output format, but if you're more at home with compression settings, you can go in and alter them yourself.

It's been a while since the last update, and there are a few minor bugs, but on balance the package still holds up well. ►





After Effects is by far the most well used effects package for Web designers, video makers, and film companies alike.

After Effects 5.5

Price £617, Production bundle £1439

Company Adobe [t] 020 8606 4000

[w] www.adobe.com

System PC and Mac

After Effects is the best known and the most widely used compositing package, finding a home in edit studios, effects houses, and Web design studios alike. It's a versatile tool, able to import/export Macromedia Flash files as well as video and still images.

Compositing tools include animated masks filters and effects, colour correction tools, and various types of keying. Particle effects with basic physics and simple video painting are also included in the Production bundle as is 2D motion tracking.

Version 5.5 introduces new effects including an exposure stabiliser which can counter the effects of changing brightness during a shot (like the sun going behind a cloud, for example).



Commotion 4 Pro

Price £821

Company Pinnacle [t] 020 8358 5857

[w] www.pinnaclesys.com

System PC and Mac

Commotion used to be an excellent video painting package with a sideline in compositing. Nowadays, it's a strong competitor for *After Effects*.

Semi-automatic colour matching will be a great help to anyone trying to blend CG and real world footage. The Keying and Matting tools are superb with the Primatte keyer (one of the best keyers we've seen) being included in the package. Particle systems are very strong with good, easy to use physics (although they don't look quite as good as those of *combustion 2*).

Commotion's video painting and rotoscoping tools, however, remain as one of its strongest points with a good range of real, and surreal brushes, as well as the ability to clone parts of an image over a range of frames.

Similar to *After Effects*, there's a Standard and a Professional version of the software — with the pro version featuring more effects filters, and motion tracking tools.



combustion 2

Price £4517, upgrade £703

Company Discreet [t] 020 7434 2950

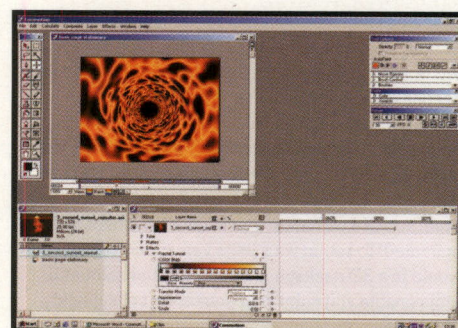
[w] www.discreet.com

System PC and Mac

Discreet's entry into the desktop compositing market is the impressive *combustion*. Much of the package has been borrowed from the (extremely) upmarket *flame* system so not only are the tools top-notch, but users are also able to switch from one system to the other with great ease. 3ds max 4 compatibility is also very strong, so when used in conjunction with 3ds max 4, *combustion* becomes an even more powerful tool.

combustion combines a well laid out interface with some very useful masking and keying tools, good motion tracking functions, and a very effective set of colour correction tools. In the newly released V2, some neat character generation and animation tools have been added.

In addition, this package introduces the most visually stunning particle system we've seen in a desktop compositor, and a huge range of presets enable you to create all kinds of effects right out of the box.



combustion 2 — a powerful compositor with the best particle effects we've seen on the desktop.

Matrix 1.0

Price Node-locked \$2995, floating license \$4495

Company Chrome-imaging

[w] www.chrome-imaging.com

Contact sales@chrome-imaging.com

System PC

A solid all-round compositing package. *Matrix* is designed for the TV and film industry, and includes strong keying, matting and masking tools. Chromakey is handled by the popular Primatte keyer, and motion tracking includes the ability to estimate the motion of an object when it passes behind another object in shot.

The layout of the package is neat and a system of tabs lets you switch between the main functions of the package (importing, compositing, video painting, motion tracking, and rendering), and the ability to switch between flowchart, timeline, and keyframe graphs of your project give a good level of control.

The particle system is weak compared to others and there's no text tool, but video-painting tools are quite well developed and feature a range of natural media.



Twixtor

Price \$325

Company revision Effects

[w] www.REVISIONFX.COM

System PC and Mac

When you slow down a piece of video footage, you're increasing the amount of information you need to display to produce a smooth shot. If you've got a scene shot at 24 frames per second, and you slow it down to a quarter of its original speed, you're effectively showing just six frames per second. The result is a jerky image.

Twixtor solves the problem by using a kind of morphing, to create intermediate frames, and produce a smooth, graceful motion. Likewise, when speeding up a scene, *Twixtor* can create appropriate shots to combine frames and create a more realistic effect.

Twixtor is as an *After Effects*-style add-on which means it should work on compatible packages like *Premiere*, *combustion*, *Commotion*, and *Final Cut Pro*.



Plug-in compatibility

Effects filters, and third party plug-ins to create new and different effects are widely available (many are even free). These plug-ins are designed to work with your compositing (or editing) software...

By far the most common type of plug-in is the *After Effects* format. This is accepted now by a range of packages including *Premiere*, *combustion*, and *Commotion* (although do check before shelling out, because some plug-ins won't work properly on some programs). Many programs also accept *Photoshop* filters. This opens up a whole range of cheap, animatable effects and backdrops for your work.

All you usually need to do to activate them is to copy them into the appropriate folder within your effects package.

Maya Paint Effects

Price \$499

Company Alias|Wavefront

[w] www.aliaswavefront.com

[w] store.toolfarm.com/painteffects

System PC and Mac

Maya Paint Effects is an *After Effects* plug-in which enables you to paint onto video frames using animated effects brushes. Each paint stroke is a curve which can be drawn onto the frame, then edited later. Paint effects — of which there are about 140 — include various settings and animated properties.

Simple brushes and airbrushes are covered, as are more interesting effects like lightning, water, popcorn, trees, flowers, smoke and bubbles. For each brush, you can alter effects such as wind (making grass sway from side to side), gravity (making it droop), or lighting. Some of the brushes are superb and, although they may at first appear to be rather limiting (for example, a hyacinth is a very specific flower, and not much use if you want a tulip), they can be blended and altered in some quite interesting and unexpected ways.

Rendering these effects takes time. Often several minutes per frame on a reasonably respectable computer. However, the results are sophisticated and effective.



CineLook

Price \$695

Company DigiEffects

[w] www.digieffects.com

System PC and Mac

CineLook takes in video footage and makes it look like film.

This set of two *After Effects* plug-ins (one for creating the grain and look of film, the other for simulating damaged stock) comes with a bewildering array of options and settings. However, it also includes a range of presets which let you fake various makes and grades of film — from dirty 8mm black and white through to cinema quality 35mm.

Damage presets let you create anything from unaffected stock through to old, decayed film covered in scratches and stains.

To be really effective, you will need to light your video shoots while having the film look in mind, and then reduce them to the standard 24 frames per second (de-interlaced), however, with good raw footage to work from, you can expect to convince anyone but a cinematographer.

Boris FX 6

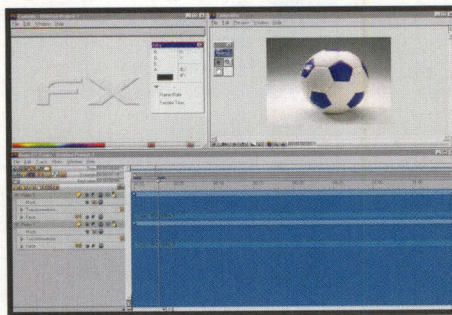
Price £440, upgrade £810

Company Polar Graphics [t] 0208 868 2479

[w] www.borisfx.com

System PC and Mac

Boris FX from Polar Graphics enables you to turn your editor (*Premiere*, *Media Studio*, *Speed Razor*,



Boris FX 6 turns your editing package into a compositor, so you don't have to keep switching from one to the other.

Final Cut Pro, as well as many other editors) into a full-blown effects package. *Boris FX* can vastly extend the range of your non-linear editor or effects package, adding effects filters, particle effects, as well as advanced keying.

With *Boris FX*, you can quickly and easily add 2D and 3D particle effects like rain or snow to a scene, choose from 27 different compositing modes, and work on your image with (limited) 3D tools. You can also keyframe and layer all the effects to produce a huge range of effects on your entire image, or just a portion of it.

It hasn't quite got the range of a dedicated effects package like *After Effects* (the principle omission being a lack of tools for masking off portions of the image so effects are only applied to certain areas), but it's a strong set of instant solutions to some of the more common FX problems.



Aura 2

Price £704

Company NewTek

[w] www.newtek-europe.com

System PC

Aura is NewTek's compositing and video painting package. With it you can paint onto any individual frame of video using a good range of natural media tools.

Painting strokes can be recorded and played back over time, creating write-on effects for painting and text. Filters are also provided, and *Photoshop* add-ons can be brought into the package too, and applied either to one frame at a time, or to a range of frames.

Rather neatly, *Aura* also manages to render your video work as you are going along, so even with the most complex of effects, you can watch the results of any changes that you have made as soon as you have made them. Your video is then played back in real time and instantly.

The package also features a range of compositing tools which enable you to mask, as well as key effectively, do colour correction and grain-matching jobs, and 2D motion tracking.



Macromedia Flash MX

Price £433; upgrade from Flash £175, from FreeHand £93

Company Macromedia

[w] www.macromedia.com

System PC and Mac

Macromedia *Flash* was created for Web design, but more and more, it's becoming a chosen tool for video post production. *Flash* animations are usually graphical rather than realistic, but with more and more companies wanting to transfer their animations back and forth between video and Web media, it's being used alongside compositors and editing packages to create compelling animation.

Flash makes it very easy to produce simple animations, and if you need a greater degree of control, it's there. The package is especially good with text animation, and includes a number of features for embellishing and animating it. See last month's *Computer Arts Special* for an in-depth look at *Flash MX*.



Photoshop 7

Price £528 (upgrade: £116)

Company Adobe [t] 020 8606 4000

[w] www.adobe.com

System PC and Mac

It's probably true to say that you can't really set up a video production suite without some form of photo-editing package. *Photoshop* can't actually import or export video files (except in the rather clumsy Filmstrip format), but it's invaluable for creating masks, and mattes, as well as doctoring still images, creating elements for animation, and producing text effects.

Photoshop includes tools for cloning which are useful in seamlessly removing unwanted objects from a shot, as well as good masking tools so you can create grey-scale masks to define how an effect (created in another package) will be applied to your image.

Photoshop layers can often be preserved in effects packages such as *After Effects*, so you can make use of transparency, and multi-layered imagery. **ca+s**

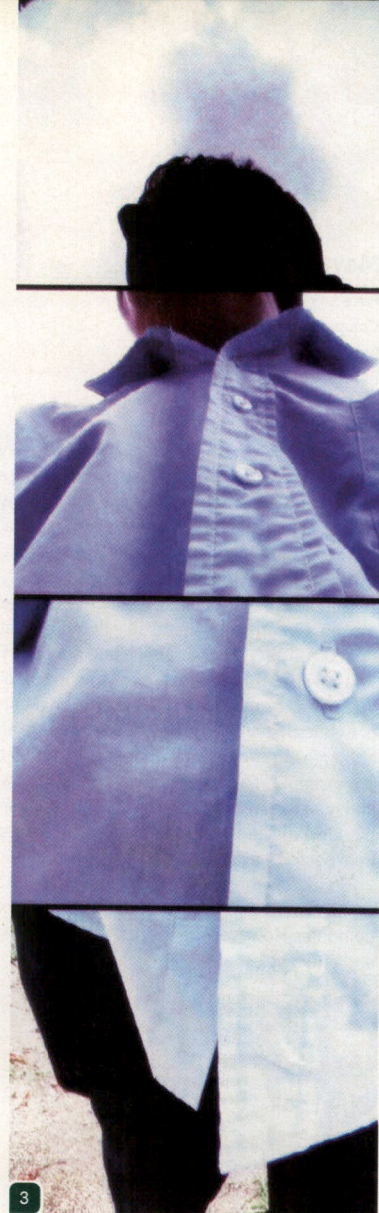
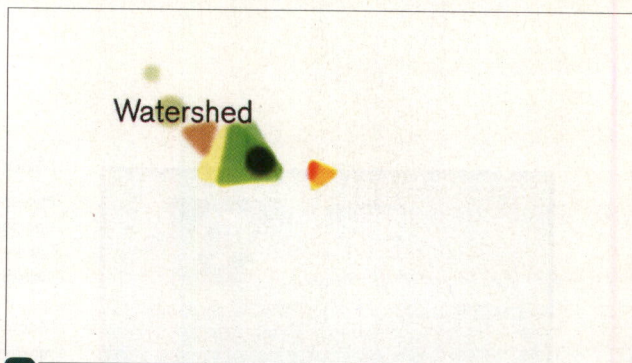


Macromedia *Flash MX* — not usually thought of as a video tool, *Flash* has great 2D animation and text tools.

1. *Watershed* features the story of a man and his romances in New York. For this title sequence Tom created a moody stance on New York working on blurred lights, much as you would find when waking up in a hazy city after a night full of illuminations. The lights move and, as the colours merge, you begin to see a city coming to life. The titles were developed in *After Effects*.

2. *Walking Time* features footage shot in Paris around the grand fountain in the Jardin du Luxembourg. The footage was shot from all four directions: North, South, East and West. It brings together a mix of paces, fast walkers, a mother with stroller, jogger, tourist and casual visitor, each of which show a different degree of observation, presence and urgency.

3. "*Portrait* was originally commissioned by Sundance who asked me to create a three-minute short for its 2002 Film Festival. The footage was shot in Paris, Mexico, Japan and London over the process of several years," says Tom. The film essentially consists of a loop – a 360-degree rotation down an alleyway of trees. It is intercut by visual cues of reflection, meeting, looking, arriving and departing: juxtaposing the notion of a personal dialogue.



Tom Flemming

It's what you do with DV that makes it so great. "*The beauty of DV lies less in its quality and more in its malleability. Once it is fully digital it's Silly Putty,*" enthuses Tom Flemming...

Sometimes, trying to get a straight answer from Tom Flemming is like trying to get a small child to ride a bicycle in a straight line. He'll veer off in a wayward direction, ignoring your gentle push, never quite going the way you want him to. For example, try asking him what equipment he uses for filming. "Mainly <http://web.Osil8.com/episodes/megway/home.html>," comes his light response by email. Click the link and you get a spoof site promoting a person called Meg who can be used for all sorts of work and play. Ask him how old he is and you get, "<http://realage.com>, according to the calculations I will turn 25."

Flemming is a man immersed in film making, telling stories, and deconstructing time codes and realities, but he's not a Q&A man. Given the diversity of his work and experience, perhaps this isn't surprising. In

addition to his many short films, two of which featured at the Sundance Film Festival this year, Flemming has worked in Hollywood, creating title sequences for major motion pictures such as *Hannibal* and *AntiTrust*. He was awarded an MPhil from the Royal College Of Art in London for his research into the structures of language and how artists in the middle of the last century worked with film.

Playing with ideas

When Flemming's not doing commercial work he's experimenting and playing with pictures. Despite the reluctance to endorse categories, he's happy to call himself a film maker. "Film makes it possible to play with ideas. It allows me to work with images and talk about the stuff that happens between the lines. I

haven't found anything that would compare to it yet," he says. His DV camera is the tool that helps him create the external visualisations of his thoughts and imaginings. It's a flexible tool and that, believes Tom, is where the power of DV lies.

"There is nothing that can compare to the beauty of film. Film is expensive but unparalleled in what it can enable image-wise. The beauty of DV lies less in its quality and more in its malleability," he explains. "Once it is fully digital it's Silly Putty, you can knead it in your fingers." The format's immediacy and ease of use also make it attractive to Flemming. That's why he has no truck with questions that demand a detailed equipment listing.

"People shouldn't be too in awe of the technology," he says. "The crucial part is what you do with it. As easy as it may be, it is enticing to get carried away with it. At

The beauty of DV lies less in its quality and more in its malleability...

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4. *LAX* is a feature film that tells the story of a heist at Los Angeles International airport. Tom was commissioned to create the main and inter-film titles for the different characters in the film. The titles for the film are based on the flight controller's radar screen, blending a low-resolution digital look with flight navigation. The titles arrive in a slow reveal through an assemblage of flight digits. They were developed in *After Effects*.



the end of the day, it is just a piece of technology and will end up on the scrap yard in the corner of your office before you know it".

Tom is producing some fascinating work with his piece of rapidly-dating technology. A quick look at Tom's short films alerts you to the fact that his first love doesn't lie in making multiplex fodder for the Saturday night movie-going brigade. His ambitions are more accurately reflected in his expression of admiration for Hungarian films. "The Hungarians are fantastic film makers," he enthuses. "They are true film makers and use film-like poetry. Film is not about the actual piece of film or the time it takes to watch it. It is about what is hidden beneath and interwoven between the two."

Concepts of space and time are the poetic themes dominating Tom's film making. His three-part series of films for a group of architects, *Popo*, is intriguing, thought provoking, and curiously mesmerising. Each film deals with the perception of interior space and has, says Tom, enjoyed a tremendous reception with viewers. His most ambitious project, however, is one that he's keen to take further — *Walking Time*.

Walking Time is a piece of DV that works with dynamic time codes. The film features people walking back and forth in front of a fountain and is linked to the flow of Web traffic to the site. The busier the site, the more people viewing the film — so, the faster the film's run time. The time code then slows down as the traffic slows down so that it can, if visitors trail off markedly,

eventually slide into reverse. Tom is keen to transfer this visual representation of an otherwise intangible event to other situations — perhaps hooking up a piece of film to the ups and downs of the stockmarket.

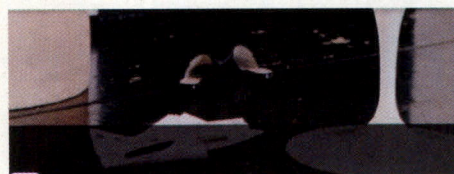
It's this sort of gleeful experimentation that's most fascinating about Flemming's DV work. He has a bundle of notions and offbeat ideas that challenge the way we look at the world. Most central to this is the relationship that film has with time.

"With DV we can see a disruption of the time code," he elaborates "Mike Figgis is doing interesting work with DV. His work with the autonomy of the camera is very stimulating. DV has enabled the camera to shrink, and this newfound mobility is opening up new avenues. In some ways it is also a return to the early film making of Dziga Vertov. The camera is part of the dialogue of the scene, not just a prop that records."

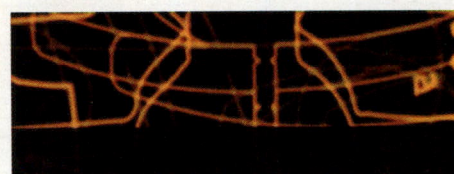
With DV, film making is becoming exciting again, and Flemming is riding high on that excitement. Whatever he does next won't be boring, and it promises to be insanely challenging. "I am working on a project that will surpass anything seen before," he says tossing modesty aside. "It is still under wraps. Hopefully, by summer I will be a step further. It's a new kind of motion picture, something suitable for the 21st Century." We wouldn't expect anything less. **case**



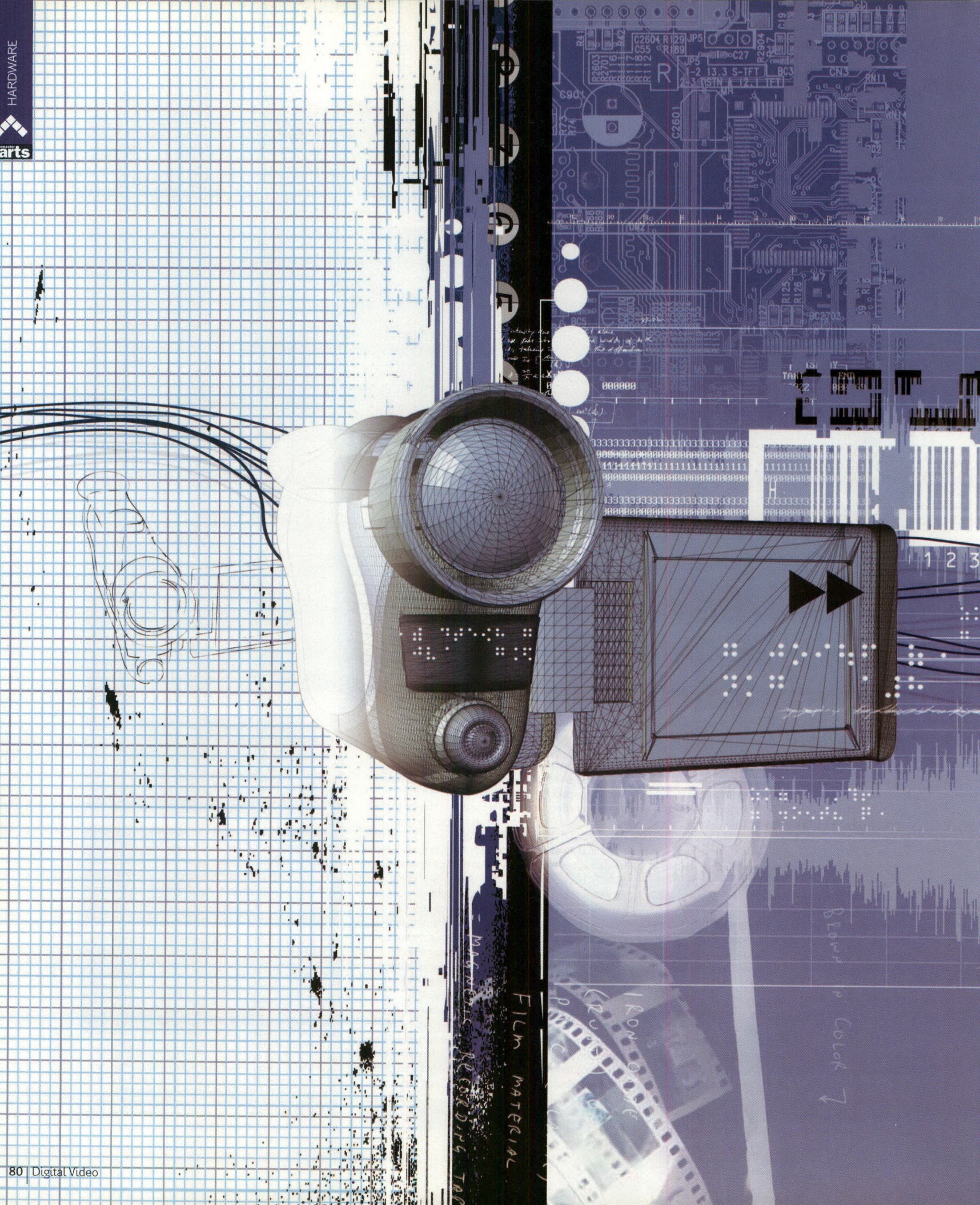
View Tom's work at [w] www.tomflemming.com.
Email him at [e] tom@tomflemming.com.



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5. Like much of Tom's work, *Open* is film that contemplates space. It is entirely made out of still images. The three sets of the movie articulate a private place, then a public setting and finally the fusion of the two. In addition, the film adds a further layer described by a sequence of words. Each sequence articulates a moment within its set, describing an event, until these words are strung together to shape a sentence suggesting a further reading to the entire situation.



Essential DV hardware

To get into DV, you need a camera, a capture card and some software – but with so many options, what should you choose? Let our essential hardware list guide you...

Just like 3D software and hardware, the price and popularity of digital video equipment has dropped considerably in the past few years. Both source equipment, such as camcorders, and the hardware needed to edit it are now freely available to the home user or hobbyist at a range of prices and capabilities. Although you can still spend thousands of pounds on a complex real-time system if you want to, there's often no need when there's such a choice of other solutions available.

The very least you'll need to get into digital video editing is a DV camcorder – which can cost anywhere between £400 and £3500 in the non-professional range – a reasonably recent PC, a capture card, and some editing software. One significant benefit of the DV age is standardisation: you can be sure that if you have a DV camera, all you need is a FireWire-compliant capture card to import video from it. Strictly speaking they are IEEE 1394 cards – FireWire is Apple's proprietary name for the format (which it invented), while Sony uses its own name of iLink.

The software that is often bundled with your capture card ranges from the low-end introductory flavour (such as Pinnacle's *Studio* range) up to the likes of *Premiere*, *Final Cut Pro* and *Speed Razor*. *FCP* is perhaps the only sensible choice for the Mac if you want to do more than just edit holiday videos. On the PC, the range is slightly wider, although *Premiere* tends to be the most widely-supported among OEMs.

Real-time effects cards have also tumbled in price. These contain dedicated chips which, like 3D graphics accelerators, render visual effects and transitions on-the-fly, rather than your main CPU doing all the work. This means you don't have to sit around waiting for each effect or transition to be rendered before you can preview it. You only need to produce one reasonably effects-laden project to realise just what a time and patience-saver this can be.

This listing is by no means comprehensive, but does include all the DV hardware *Computer Arts* has reviewed in the last year or so, and all the main products from the major players. ➤

Camcorders

Canon MV 450i

Price £900

Company Canon [t] 01737 220 000

[w] www.canon.co.uk

System PC only

Although the MV 450i is a mid-range camera in terms of price, it certainly doesn't feel like one in terms of quality. Design and build quality are superb, and it fits easily into the palm of your hand. There are some nifty features too, such as the ability to record in 16:9 format (although this isn't true anamorphic widescreen), DV in and out (with the obligatory S-Video connection), and an Analogue In connection, which is always useful.

Picture quality is good, with progressive scanning — even if skin tones are rather dark — and, of course, there's a slew of pretty but pretty useless effects such as sepia. With seven different exposure modes rounding things off, this is one neat little camcorder.



Canon XM1

Price £1700

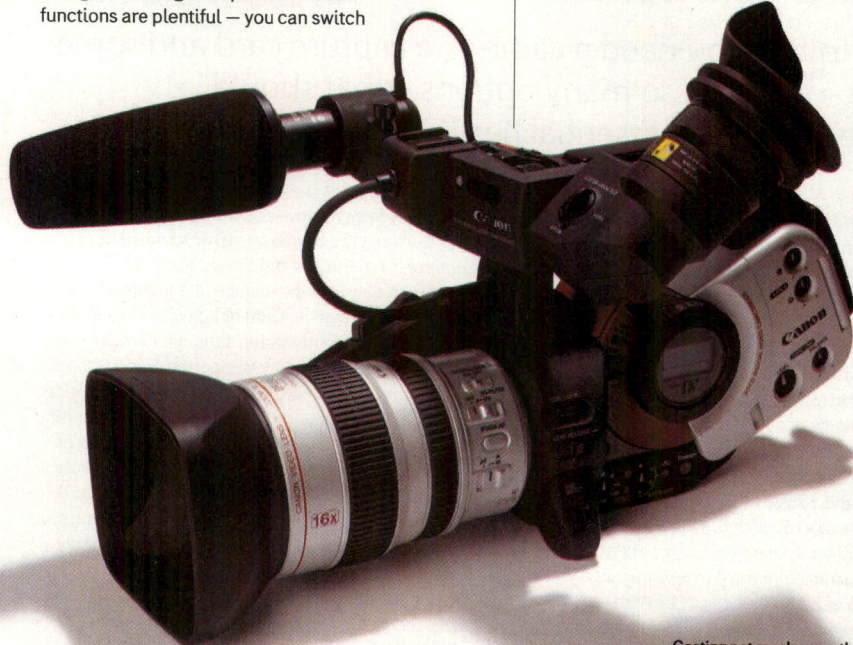
Company Canon [t] 01737 220 000

[w] www.canon.co.uk

System PC and Mac

Not quite an XL1 or XL1S, the XM1 nevertheless creeps into semi-pro territory, despite the very reasonable price. The chunky, handheld build indicates that its intended use is for more demanding jobs than simple holiday footage.

The fluorite lens provides excellent picture quality, with good low-light response. Manual functions are plentiful — you can switch



Costing not much more than a mid-range consumer camcorder, the Canon XM1 is a brilliant piece of equipment and well-suited for high-end use.

Compatibility woes

While MiniDV cameras supposedly all conform to the same MiniDV standard, as usual things are never quite that simple. Certain brands of cameras traditionally have problems with certain makes of FireWire adaptors. For instance, JVC's models in particular have caused many problems in the past — camera control is flaky, imported video drops frames or is simply corrupted, and so forth.

Although the situation has improved somewhat since the early days of desktop DV, it's usually worth checking around to see if your intended hardware combinations actually play together nicely, before shelling out on major purchases. Of course the easiest way is to buy a complete system from a single OEM which has been tested thoroughly for compatibility.

between several shooting modes with a simple wheel, and all the other controls are in sensible, time-tested positions, especially handy for prolonged use.

Unfortunately, there's no audio level control or manual zoom ring, but the zoom buttons work well and smoothly, unlike many consumer cameras. DV input is enabled, but there's no analogue input or memory card for recording still images (although you can record these directly to tape).

A fine piece of equipment at an astonishingly reasonable price.



Canon XL1S

Price £3019

Company Canon [t] 01737 220 000

[w] www.canon.co.uk

System PC and Mac

Like its predecessor, the XL1, this is aimed squarely at the semi-pro and pro market — a very large and fully-



The XL1S continues the tradition of the mighty XL1, a firm favourite among semi-pros and documentary makers.

featured camcorder which you won't see on the beaches of Ibiza. Subtle improvements include a new friendlier menu system and proper framing of widescreen images in the viewfinder, plus zebra striping to indicate areas of overexposure. The lens is detachable and the XL1 can take any Canon EF lens, though the one supplied is probably more than adequate, with manual zoom and focus and ND filter.

On the minus side, there's still no fold-out LCD screen, so you always need your eye up to the viewfinder — not ideal for tricky news-gathering operations. On the whole, though, this is a sturdy, exciting camera with plenty of manual controls, ideal for the jobbing cameraman or low-budget film maker.



Sharp VL-ME10

Price £850

Company Sharp [t] 0161 205 2333

[w] www.sharp.co.uk

System PC only

This is the ME100's little brother, with essentially the same design and uncluttered casing but with lower-spec features. The image quality is identical, however, and you can still record still images to a memory card, as with nearly every camcorder (though only at 640x480 res here).

The ME100's zoom mic is optional with the ME10, but the windbreak, zoom audio blending and dialogue enhancement features remain. Sadly, the ME10 features no video in so you can't export your



The VL-ME100, a surprisingly good little camera from Sharp, a company which hasn't exactly had a great track record with camcorders.

masterpieces from computer back out to DV tape, which is always an annoyance. A relatively inexpensive and capable camcorder for hobbyist use.



Sharp VL-ME100

Price £1300
Company Sharp [t] 0161 205 2333
[w] www.sharp.co.uk
System PC only

Sharp has never designed the best-looking cams in the world, and the ME100 is no exception. It's neat enough but rather chunky, but the controls are well-placed and it sports enough manual features to please most. The 3.5-inch LCD is particularly clear and smooth with a matt surface and wide range of visibility.

As well as a built-in mic, the ME100 features a zoom mic which fits into the hotshoe on top of the cam and only picks up sound from directly in front of it. The automatic Blend function then mixes the sound of the zoom mic with the on-cam mic depending on how far you're zoomed in, which is a nice touch. The inclusion of infra-red filming, thanks to the built-in IR light, is a neat if odd feature too.



The DVX44 might be small but it's not particularly well-designed, making for some awkward moments during use.

JVC GR-DVX44

Price £800
Company JVC [t] 0870 330 5000
[w] www.jvc.co.uk
System PC only

The DVX44 is one of those square little cams (and we mean little), the design of which you'll either love or hate. Again, controls are reasonably well-placed, with variable zoom button, a still photo button, exposure and playback controls all within easy reach of your thumb or fingers. Unfortunately though, actually holding the cam isn't so comfortable; the strap is angled so that your index finger naturally falls over the built-in mic, your middle finger over the lens, and your thumb over the viewfinder. Strange. Colour saturation is quite poor in less than perfect lighting too.

The DVX44 isn't a terrible offering, but there are better cams out there.



JVC GR-DVP3

Price £1100
Company JVC [t] 0870 330 5000
[w] www.jvc.co.uk
System PC only

This is one of the teeniest camcorders you'll find, at about one third of the height of an average VHS video case, and only slightly wider. Obviously, this means its buttons and controls have had to be kept rather small, so those with larger hands may have trouble with them. For instance, the zoom and record buttons are placed in such a way that you really need two hands to operate the camera, which somewhat negates its handy pocket size.

Image quality is so-so, again with that lack of colour zing peculiar to JVC, and the flip-out LCD is necessarily small. A DV input and still image capture round off an averagely good package.



JVC GR-DV2000

Price £1600
Company JVC [t] 0870 330 5000
[w] www.jvc.co.uk
System PC only

One of JVC's higher-end hobbyist camcorders, with a decent lens and a manual focus ring. Unfortunately, the zoom is a little heavy-handed, so you'll need to practise to get smooth transitions. The fold-out LCD is large (3.5 inch), but tends to look jerky with motion.

As usual you can record still images to a memory card, up to 1600x1200 pixels here — and you can even do it without interrupting your video recording. Image quality for video and still images is good, although as with many JVC models, it seems to lack colour saturation.

Fortunately, there is a DV In socket so you can dub your edited productions back to DV tape once they're edited. It also features analogue inputs, which means

you could use it as an intermediate device for grabbing older footage from VHS or wherever.



Sony DCR-IP7E

Price £1285
Company Sony [t] 08705 111 999
[w] www.sony.co.uk
System PC only

The IP7E is quite easily the smallest digital camcorder in the world. This is because it uses Sony's new MICROMV format, with tapes even tinier than DV — and instead of using the MiniDV standard, it records with real-time MPEG2 compression.

But there are drawbacks. The IP7E is too small — the buttons and controls are almost unusable to anyone with normal-sized hands, and the zoom is a real pain to master. Image quality is suss too; in low-light conditions grain is painfully apparent, and the real-time compression results in some yucky pictures.



It may be small and it may have Bluetooth connectivity, but Sony's DCR-IP7E just doesn't cut the mustard for picture quality or usability.

With this camcorder, you also get Bluetooth connectivity, which means that you can send clips (and even browse the Internet) wirelessly via the included adaptor. However, the adaptor itself still needs to be plugged into a phone socket, and features a measly 56K modem, so this is more of a gimmick than anything.

A very disappointing cam from Sony — too expensive for amateurs and not nearly good enough for more serious users.



Sony DCR-TRV30E

Price £1500
Company Sony [t] 08705 111 999
[w] www.sony.co.uk
System PC only

Although Sony places the TRV30E at less than halfway along its 'entry-level to professional' scale, this is one full-featured camcorder. It's small enough — not ►

much bigger than a consumer palmcorder — but features a large 3.5-inch flip out LCD with superlative quality. You also get DV in, and still image capability at up to 1360x1200 pixels, recording to the built-in Memory Stick.

A night vision mode includes IR lighting, which is always intriguing, although hardly a necessity. Although there's a manual zoom it's slightly unresponsive and fiddly on the (high-quality) Zeiss lens, as is the zoom slider, which needs some practise to use well.

Definitely a fine choice for those needing a little more than a basic hobbyist camera.



Sony DCR-PC110

Price £1500

Company Sony [t] 08705 111 999

[w] www.sony.co.uk

System PC only

The PC110 is essentially a smaller, handheld version of the TRV30E, for those who want a more compact cam that's easy to carry and film with one hand. However, it does have a couple of extra features too, such as a 'video mail mode' which basically sends MPEG-1 clips by email.

Like the TRV30E, it also features a high-quality Carl Zeiss lens, a Memory Stick for recording static images, and two different night filming functions (although, unfortunately, also like the TRV30, it doesn't fare too well with genuinely low-light situations). It's small, but not so small that it becomes unusable and, of course, it's infused with Sony's famous build quality.



Although expensive compared to its competitors the Canon XL1S and the XM1, Sony's VX2000 is well-loved within the industry.

Sony DCR-VX2000

Price £3200

Company Sony [t] 08705 111 999

[w] www.sony.co.uk

System PC only

Sitting at the top end of Sony's consumer range, the VX2000 is a fully-featured camcorder for those who need more control and features. In fact, it's widely used in journalism, TV, and even low-budget film making. As with all professional models it's rather large, with a carrying handle and plenty of manual controls, including zoom and focus rings.

One annoying fault is that the battery pack can't be charged unless it's attached to the camera (a feature of most Sony models), which could be a drawback if you're out in the field news gathering. It does have DV and analogue input as you'd expect, yet strangely the

still image resolution is fixed at 640x480, which is hardly worth it.

Certainly a bargain if you intend using your camcorder on a professional basis.



Editing systems

OrangeLink FireWire 1394

Price \$59

Company Orange Micro

[w] www.orangemicro.com

System PC and Mac

Yet another entry-level FireWire card (or IEEE 1394, to be precise — despite the mixed-up title of the product). It offers three external ports, includes a cable, and comes with strangely unspecified and untitled software for both Mac and PC. Apparently, said software features true non-linear editing, with titles and audio, and exports to QuickTime or your camera. Cheap, but there are better bundles around.

Studio DVplus

Price £150

Company Pinnacle [t] 01895 442 003

[w] www.pinnaclesys.com

System PC only

Studio DV is about as simple and entry level as you can get. Essentially, it's nothing more than a FireWire card (with two external ports and one internal, one S-Video and one composite), a supplied FireWire cable, plus Pinnacle's own *Studio* editing software.

This is a very friendly — although not exactly powerful — little package, especially suited for beginners, and enables you to quickly bosh together sequences complete with a myriad of effects courtesy of Hollywood *FX Bronze*. 'Smart editing' (otherwise known as proxy editing) uses low-res clips for the editing process, then substitutes the real thing during the export, saving time and a lot of disk space. You also get 10MB of online space for sharing video on the Web.

You get what you pay for

When looking for a digital camcorder, know exactly what you want from it...

Any camera will do the basic job, like enabling you to film footage and transfer it to a PC. The difference lies in its extra features, its degree of manual control, and of course its basic picture quality.

Generally speaking, camcorders fall into three categories:

- **Low-end/consumer.** A good camera for this level is the JVC GR-DVX44. This camcorder is aimed at the home user or the dabbler, and will set you back between £400 and £1000. At this price range, they often lack a DV-in port, which is an essential feature if you want to record your edited production back out to DV tape (this is pretty much the only way to maintain perfect picture quality).
- **Mid-range/enthusiast.** Mid-range/enthusiast-level will need a camera like the Sony DCR-TRV30E. Camcorders in the £1000 to £1700 range tend to feature much better build quality and components — such as a professional-grade lens. You'll also have far greater manual control over settings if you desire them.
- **Semi-pro/pro.** Higher-level users will like the Canon XL1S. Above £1700, the price begins to rise to sharply as you enter the realm of the semi-pro. Cameras at this level are almost all manually-operated, since many are used by jobbing news cameramen, documentary makers and even short film-makers, who need this level of control. Sundry gimmicks such as sepia tones give way to more powerful features such as audio balancing and detachable lenses.



An entry-level FireWire board which comes with some sort of editing software — quite what it is remains a mystery.



A good introductory package for anyone wanting to get into DV, *Studio DVplus* includes a board and some user-friendly software.

FASTstudio.DV 3

Price £630

Company Pinnacle [t] 01895 442003

[w] www.pinnaclesys.com

System PC only

FASTstudio.DV 3 is mainly software-based, though an IEEE 1394 card (PCI or PCMCIA depending on your needs) is included in the package as standard. It's a fairly hardcore package designed for advanced editors and includes some nifty features.

These include *InstantSave*, which saves your work in the background after every command, and background processing which takes full advantage of your CPU (or dual CPUs if you have them). This means you can still carry on using the editor even while it's rendering or processing clips. FASTstudio is also big on audio, giving you eight stereo track real-time mixing with unlimited keyframes, built-in audio filters and analogue audio scrub.

Get the optional Production Pack and you'll also get a 3D effects editor with full Z dimension control, a real-time link to other DV-savvy applications, and even more audio processing facilities.

EZDV

Price £220

Company Canopus [t] 020 7793 1188

[w] www.canopus-uk.com

System PC only

The entry-level product in Canopus' impressive range of DV editing equipment, *EZDV* is much like Pinnacle's *Studio DVplus* in that it consists of an IEEE 1394 card, plus reasonably complete editing software. Peculiarly, the card features just one measly external port, but the software side is a little more fully-featured. *EZ Edit* is the main package, while *EZ Navigator* automatically scans your tapes and creates a clip catalogue of scenes for you. *SmartSound* is an automatic background music generator with a number of preset styles, and *SoftXplode* provides 160-odd effects, including 3D ones, to spice up your projects. Finally, there's *SoftMPG Encoder*, *Web Video Wizard*, and even *DVDit! LE*.

Pyro1394DV

Price £80

Company ADS Technologies

[w] www.adstech.com

System PC only

The Pyro1394 was one of the first low-cost IEEE 1394 standalone cards to become available and it's now the world's best-selling FireWire card. There's nothing particularly exciting about the hardware, it's simply a standard PCI with two external ports and one internal. However, it's bundled with a whole bunch of useful software which would easily cost more than the card alone: Ulead *VideoStudio 5.0*, *MediaStudio Pro VE (Lite)*, *MyDVD* (a DVD authoring app, strangely enough), Ligos *GoMotion* providing native MPEG-2 editing, and a few other utils. Basically, if you're looking for a quick and easy entry into DV editing, you really can't go wrong with the Pyro.

Pyro ProDV

Price £200

Company ADS Technologies

[w] www.adstech.com

System PC only

An upgraded version of the Pyro1394. The hardware is the same — a three-port PCI IEEE 1394 card — but the software bundle here has been considerably expanded. You get the full version of *MediaStudio Pro 6.0 Video Capture*, a rather nifty little package easily on a par with *Premiere*; *DV Suite* — DV movie and photo capture; *Pixelan* — *SpiceMaster Lite*, with a bunch of the acclaimed effects and transitions for *Video Spice Rack Pro*; *Boris FX 4.0*, for yet more effects; *Animation Master 2000* — a full-fledged 3D character animation package; *Acid Style 2.0*, *Sound Forge XP 4.5* and *Cool 3D 2.0*. Considering the price, that's one hell of a hefty combo.

Pyro PlatinumDV

Price Around £300

Company ADS Technologies

[w] www.adstech.com

System PC only

Yet another version of the basic Pyro card-and-bundle combo. As before, you get a fully-fledged IEEE 1394 card with two external ports and one internal (the world's best-selling, lest we forget), plus a whole heap of software. The biggie here is the full version of Adobe *Premiere 6*, with *Photoshop LE* thrown in too. Then there's *Inscriber Title Express*, *TitleDeko*, *Sound Forge XP 4.5*, *Acid Music Express 2*, Microsoft's *Media Encoder*, *VideoShare Producer*, *MyDVD*, and all manner of sundry utilities and codecs to round off the editing experience. Essentially, this means you export in just about every format you can think of, and with *Premiere* on-board any other plug-ins you need are likely to be readily available. ➤

Speed is good

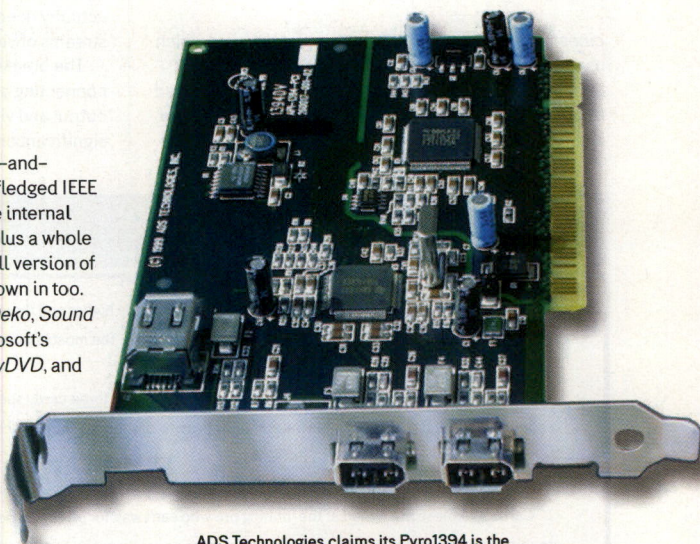
Editing digital video is a very processor-intensive task — not quite up there with producing 3D, but getting close. So you'll need the fastest system you can afford if you plan on doing a lot of editing work.

- The speed of the CPU is especially important if you're not using a real-time rendering card. Quite simply, go for the fastest you can afford — sitting around waiting for a transition or effect to render for two minutes can soon equate to days of wasted time on larger projects.

- When it comes to RAM, 256MB should be sufficient, but again buy more if you can afford it. Beyond 512MB you're very unlikely to see much speed difference.

- The most crucial factor is hard drive storage space. Bearing in mind that uncompressed DV takes up more than 3MB/s, work out how much you might need — and then double it. Drive speed is also paramount. You may be urged to buy very fast and very expensive 'AV rated' SCSI drives from various dealers. Frankly, this is over the top for all but the most demanding projects — any modern ATA100 drive should be able to cope with the demands of DV.

- Your graphics card is probably the least significant part of the equation. Again, any modern card should have the 2D capabilities needed for video. Cards from Matrox, ATI or NVIDIA are highly recommended.



ADS Technologies claims its Pyro1394 is the world's best-selling FireWire card, and who are we to argue?

DV.now

Price \$400

Company Dazzle

[w] www.dazzle.com

System PC only

Primarily developed for cataloguing clips and arranging them on a storyboard, *DV.now* can also be used for standard editing. Not surprising, given that a full version of *Premiere* is bundled with the card. Capture Assistant makes it easier to log and batch capture clips to disk, and rough edits can even be made directly within in. You can then export the whole thing directly to *Premiere* for a bout of real editing. The card itself features three external FireWire ports, and there's a high-speed software DV codec from FAST supplied with the package.

**introDV**

Price £135

Company Discreet [t] 020 7851 8000

[w] www.discreet.com

System PC and Mac

introDV is a lower-end entry-level version of *cinestream*. It uses a much friendlier wizard-based interface instead of the standard A/B timeline, and makes adding transitions and effects a doddle. It also comes bundled with *Adobe PhotoDeluxe*, *Pixelan Spice Rack Qlfx* samples (for transitions), and some royalty-free music tracks from *Sonic Desktop*. The price quoted here includes a bundled FireWire card.

cinestream 3

Price £581

Company Discreet [t] 020 7851 8000

[w] www.discreet.com

System PC and Mac

cinestream, which used to be called *EditDV*, and which used to be a *Media100* product before Discreet took them over, is a mainstay of the editing scene. Preferred by some over *Premiere* as a cleaner, more streamlined NLE, it offers all the same benefits. Version 3 includes



A full version of *Adobe Premiere* is included with Dazzle's *DV.now*, which is always a useful bonus.

EventStream, enabling you to embed links within streaming video and trigger Flash or Shockwave animations, as well as output to all the major streaming formats. You can buy *cinestream* with an optional (and very high quality) Lynx IEEE 1394 card, and as a bundle, the two represent excellent value for money.



Real-time editing systems

RTMac

Price £500

Company Matrox [t] 01753 665 577

[w] www.matrox.com

System Mac only

A Mac version of Matrox's acclaimed real-time video editing card, the RTMac delivers plenty of punch in a small, neat breakout box plus a PCI card. It's developed in conjunction with Apple and designed especially for *Final Cut Pro 2*, working seamlessly in the background to deliver its power — you don't actually need to do anything with it. It supports two streams of video and one graphics stream.

The breakout box contains an extra VGA output for connecting a second monitor, plus analogue input and output and video capture capabilities. The only significant omission is real-time rendering to a

FireWire port, so you'll have to do a complete render of your movie and then export it. It's not a big hassle, and the RTMac's many plus points make up for this.

**RT2500**

Price £650

Company Matrox [t] 01753 665 577

[w] www.matrox.com

System PC only

Matrox began the whole RT line with the 2000, which was soon upgraded to the 2500 (on the PC anyway — the Mac gets its own RTMac). The 2500 actually isn't that different to the 2000. It's still a dedicated PCI card that combines DV (IEEE 1394) plus analogue input and capture, with real-time rendering of complex effects thanks to the onboard hardware.

What it does have is a dedicated onboard 3D chip which handles all the real-time 3D effects. This is a blessing because the 2000 required you to use Matrox's own G400 card, which was rather limiting. It can handle two streams of video and one stream of graphics and comes with over 1000 effects — many cheesy, some fairly useful.

**DV500 PLUS**

Price £500

Company Pinnacle [t] 01895 442 003

[w] www.pinnaclesys.com

System PC only

The DV500 PLUS is an improved version of one of the first affordable real-time editing cards — in other words, it renders effects and cuts nearly instantaneously. Like Matrox's RT2500 it can handle two streams of video (but no specialised graphics channel) and features plenty of inputs/outputs: three FireWire ports, composite video and S-Video. Effects and transitions are provided by *Hollywood FX Copper*, and handily you also get a full version of *Adobe Premiere 6* bundled with it. Pinnacle's other utilities such as *TitleDeko* round out the package and make it a perfect entry-level bundle for those needing a bit more power than a standard capture card.

**Pro-ONE**

Price £900

Company Pinnacle [t] 01895 442 003

[w] www.pinnaclesys.com

System PC only

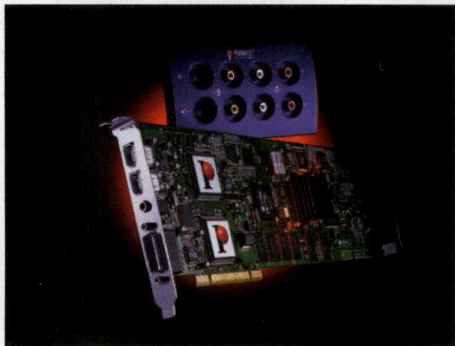
At the high-end of Pinnacle's real-time cards sits the Pro-ONE. Like the Matrox RT2500 this offers real-time effects and rendering, including 3D effects — in fact, you have up to nine different ones at the same time, two of which can be 3D. There's real-time

ICE ICE baby

As well as the various general real-time cards available, at the higher end there are some application-specific cards that aim to make rendering of more complex effects real-time too. The most famous used to be made by ICE, which is now part of *Media 100*, which in itself is part of Discreet.

For instance, *Media 100* ([w] www.media100.com) produces three cards specifically aimed at *Adobe After Effects* rendering. The 'basic' card includes four TM1300 processors running at 166MHz each, plus 50 accelerated plug-in effects. It doesn't come cheap: list price is £3400. At the next level there's *Media 100 ICE Ultra*, featuring a staggering eight processors and 124 accelerated plug-ins. Cost to you: a mere £5280. For more see [w] www.media100.com.

Cards like these are aimed at the jobbing pro who can't wait for effects to be rendered. Unless you're banging out graphics-laden film-res effects all day, you'll almost certainly get by just as well with one of the usual real-time cards.



The Pro-ONE from Pinnacle is a comprehensive real-time rendering card that offers extensive 3D effects too.

support for two video layers and one graphics layer, and all effects are fully customisable. The PCI card features one composite, one S-Video and two FireWire ports, a video overlay chip for real-time monitoring, audio inputs with adjustable levels and real-time recording, and just about every output you can think of. It's not cheap, but it does have just about everything that a real-time rendering system could.

DC1000

Price £1200

Company Pinnacle [t] 01895 442 003

[w] www.pinnaclesys.com

System PC only

The DC1000 is a fully-featured MPEG 2 editing and effects system, consisting of a PCI card and a chunky breakout box bristling with inputs and outputs. Editing and effects are performed in real-time in native MPEG 2 format, and a feature, known as SmartGOP, enables you to edit frame-by-frame with no loss of quality — not easy with MPEG-2. More than 200 crossfades and effects are included courtesy of *Hollywood FX Copper*, and again a full version of Adobe *Premiere 6* is bundled. However, it's worth noting that DV ports are actually optional, since this is an effects card, so you'll need a separate FireWire input otherwise.

DVRaptor RT

Price £450

Company Canopus [t] 020 7793 1188

[w] www.canopus-uk.com

System PC only

Another real-time editing and effects system, consisting of a single PCI card (no breakout box with this one, which is a shame) with one FireWire link, one composite out, and one S-Video out — analogue inputs are strangely absent. The RT can handle three streams of DV plus moving title and graphics layers, putting it a step ahead of competing products. There are 23 DV-optimised real-time filters for chroma keying and colour correction, plus the separate *Xplode Basics*, which offers another 160-odd transitions. You can also encode to MPEG-1 and MPEG-2, although

using a software-based solution rather than the built-in hardware. For around £520 you can buy the Raptor RT bundled with a complete version of *Premiere*, too.

DVStorm SE

Price £850

Company Canopus [t] 020 7793 1188

[w] www.canopus-uk.com

System PC only

Effectively a higher-end version of the DVRaptor RT, with an increased price to match, the DVStorm comes with the obligatory PCI card plus a handy breakout box featuring a FireWire port, composite in/out and S-Video in/out. Effects and transitions are once again handled in real time — no waiting around for rendering — and the Storm can output MPEG-2 for DVD, or streaming formats for the Internet. *Xplode Basics* is on hand to provide the effects, *StormEdit* does the duties for editing (or you can use *Premiere* if you have it — it's not supplied here), and the whole caboodle is scalable, so the faster your PC, the faster the results. A nice little package.

DVRex RT Professional

Price £3750

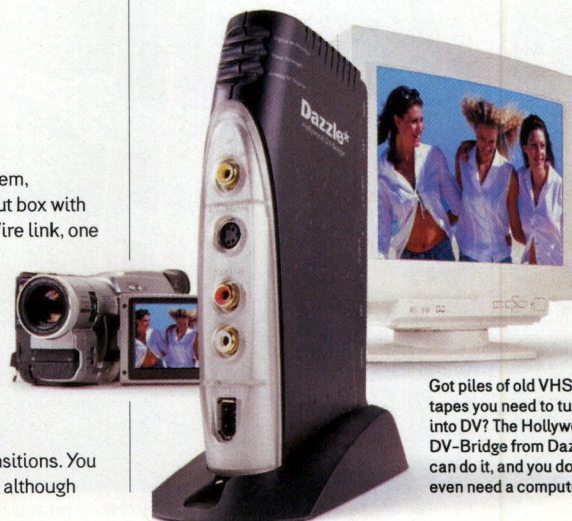
Company Canopus [t] 020 7793 1188

[w] www.canopus-uk.com

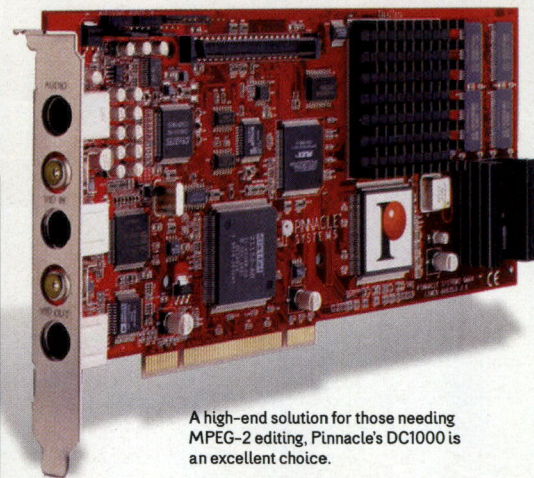
System PC only

This is aimed squarely at professionals or those who needs plenty of power. It's a real-time NLE with a dual PCI bus board design, component video input/output, and plenty of other high-end features. You can capture through the IEEE 1394 ports, S-Video, or composite connectors, and output in real-time to DV or analogue directly from the timeline, including MPEG 1, MPEG 2 and streaming video formats. Just about everything else is real-time too: video tracks, moving titles, transitions and filters. A DV and RS-422 analogue deck control provides frame-accurate editing.

Other features include colour correction, picture-in-picture, luma and chroma keying, embossing and so on. Audio is well catered for too, with real-time filters,



Got piles of old VHS tapes you need to turn into DV? The Hollywood DV-Bridge from Dazzle can do it, and you don't even need a computer.



A high-end solution for those needing MPEG-2 editing, Pinnacle's DC1000 is an excellent choice.

a graphic and parametric equaliser, tone control and balanced XLR sockets. A large-scale 19-inch rack-mountable breakout box provides all the connectors in one simple location, together with audio level meters and analogue audio input.

The DVRex Pro offers just about everything you could want from a real-time system. It doesn't come cheap, of course, but at this level you really do get what you pay for.

Analogue to digital converters

Hollywood DV-Bridge

Price \$300

Company Dazzle

[w] www.dazzle.com

System PC and Mac

Not so much a capture card per se, but a device specifically for translating your old analogue footage to DV format. The DV-Bridge is essentially a breakout box that has one composite input, one S-Video, one FireWire and a pair of stereo jacks. You can convert from analogue to DV or vice versa, and the nifty thing is you don't even need a PC to do it — everything can be plugged straight into the box. *MainActor* and *VideoWave 4 SE* are supplied for editing purposes although, of course, you can use any software you like with the standard DV format.

DAC-2

Price \$699

Company Datavideo

[w] www.datavideo-tek.com

System PC and Mac

Much like Dazzle's Hollywood DV-Bridge, the DAC-2 is an analogue to digital converter (and vice versa, if you really want to), although aimed at a higher-end market.

It's a breakout box with a FireWire connection and multiple outputs for connection to a standard video recorder, including separate component YUV, composite and S-Video for both input and output. And, just like the DV-Bridge, you don't need a computer to use it — the box can handle the process completely by itself, running off a 12v power supply. **CA-S**

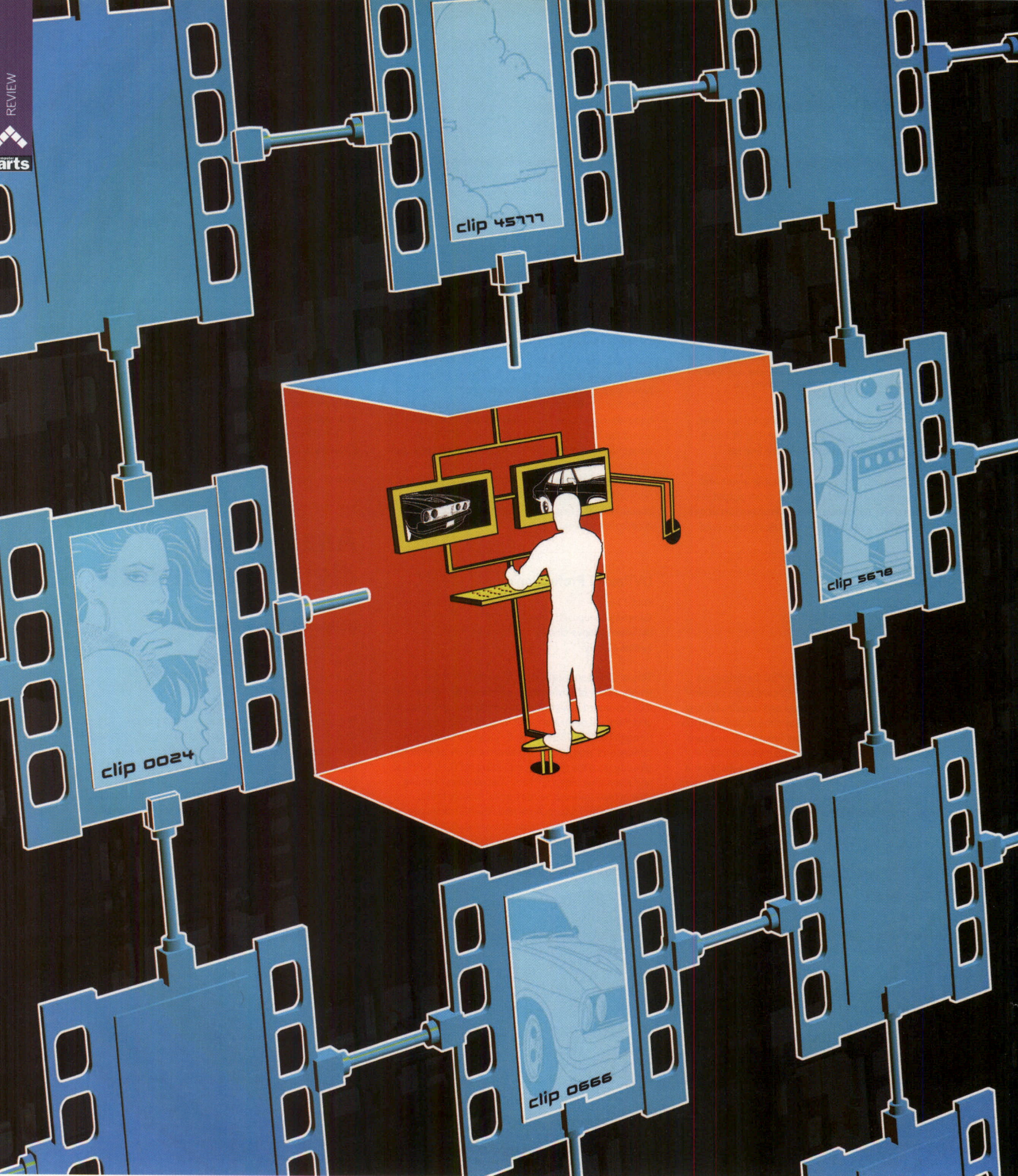
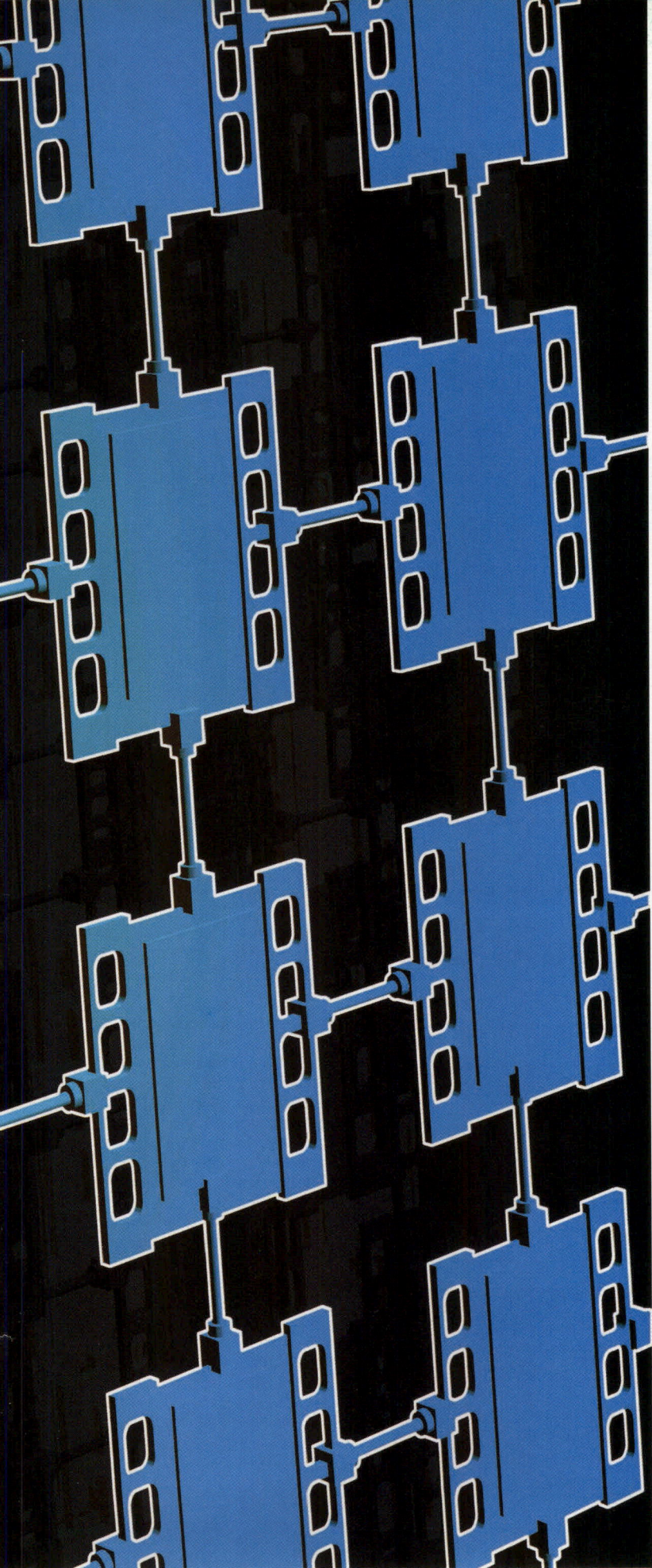


Illustration: Jacey [e] jc@jacey.com [w] www.jacey.com [w] www.getart.info [t] 0207 636 1064



Stock footage libraries

You don't always have the time or the facilities to go out and shoot material for your production. Rather than creating your own backdrop, take the stock footage library shortcut...

An establishing shot of a city from a helicopter, a lion bringing down a zebra, or a piece of sophisticated CG animation might be just what you need for your production, but it's likely to be well beyond most budgets if all you're after is a ten-second clip.

That's where stock footage comes in. You can buy — either as a single clip, or as a library — video clip art that is shot or rendered to broadcast standard. Once bought, you can use it without having to pay out any royalties in whatever production you're putting together.

There's a massive range of footage libraries available, offering everything from pre-rendered 3D graphics and abstract backdrops, to pyrotechnics, landscape shots, natural history footage and industrial images.

We've rounded up a selection of bundled collections covering a multitude of subjects across the whole range of available material. Generally, the libraries arrive on a CD-ROM in QuickTime format — although users often prefer them as TGA image sequences. You can generally get NTSC or PAL versions of your footage, and each library tends to contain around 20–30 clips. This provides an average of five or six minutes of footage per library.

Most of the shots we've featured are at broadcast quality, although some are up to HDTV resolution. ►

Business on the Go

Price

£370

Company

Artbeats

Website

www.artbeats.com
www.imaginegraphics.co.uk

Telephone

01727 844 744



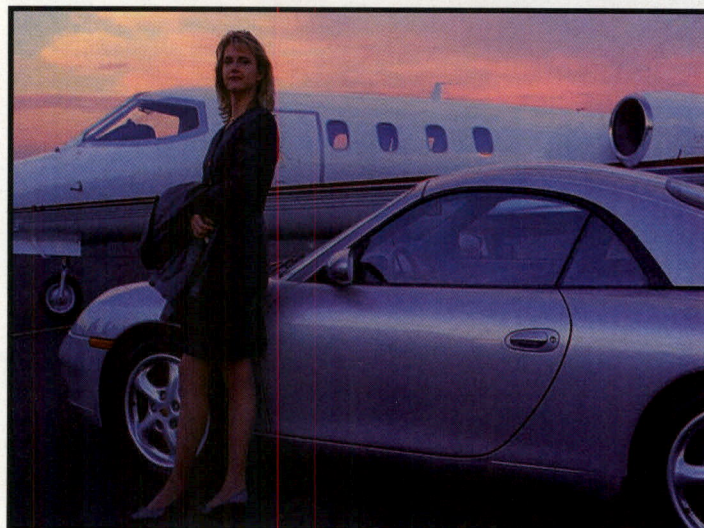
On the disc

Check out the sampler video clips from Artbeats in the Video Samplers\Artbeats folder.

This is the kind of footage which nobody finds interesting, but everybody has to use. *Business on the Go* is a selection of 22 shots of people doing, as the title suggests, business while on the move. Artbeats has done its extreme best to make the set exciting, by showing business being done in limos, beside executive jets, and via laptops in parks.

It's actually quite a well thought out little collection of images, which is generic enough to slot into any corporate video or illustrate any business-orientated narrative. However, the profusion of Porches and dark suits can make some scenes a little mobster-esque.

The library is equipped with a neat little utility for automatically exporting the clips as sequences of individual TGA frames. This will enable you to use them more easily in effects work and editing packages, as well as being able to transfer them more quickly



between PAL, CD-ROM, and NTSC frame rates. Low bandwidth previews are also included so you can easily choose your clip.

Verdict



ReelFire HD

Price

£575

Company

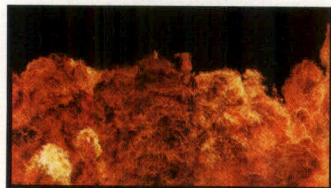
Artbeats

Website

www.artbeats.com
www.imaginegraphics.co.uk

Telephone

01727 844 744



ReelFire is a collection of pyrotechnics. Only eight clips are provided in this set, but they are HDTV quality, and they are perfectly shot against a black background for easy matting.

The detail of the fire is impressive, and they seem to have covered a good range of ignitions, firestorms, and flames. Different sizes of fire are represented, as well as different ferocities. It should be a relatively easy task to combine any of the ReelFire collection with other footage to create a realistic effect and, in addition, some of the shots are seamless – so you can loop them endlessly without any obvious cut.

This is an expensive set of images considering the number of clips, but it's a lot cheaper – and safer – than starting a real fire. Definitely one for the effects community.

Verdict



Liquid Color

Price

\$179 (£125)

Company

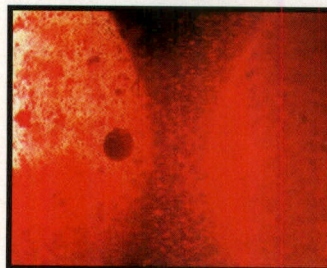
Framerate

Website

www.framerate.net

Telephone

Buy online



Liquid Color is a collection of 15 abstract background clips. These shots have a visceral feel to them. Lights are shone through thick liquid, silhouetting blobs of even thicker substances, which creates a look that is somewhere between that of a lava lamp, and a microscopic view of a blood vessel.

The result is considerably prettier than it first sounds. There are a range of colours and shades, and the liquids bubble at different speeds to create a more or less aggressive feel. And the shots also create a feeling of motion and flow.

This kind of clip would make an excellent backdrop to text, or one that could be used in effects work. However, the shots aren't too varied, and there's no cataloguing system to organise them.

Verdict



Pick-a-Video

Price

£237

Company

Ulead

Website

www.ulead.co.uk

Telephone

Buy online



On the disc

We've got a small selection of sample clips from Ulead in the Video Samplers\Ulead folder.

This massive library from Ulead provides no less than 15 CDs, with a total of 80 clips in five different subject areas. Each clip is provided in three versions: a preview version, a CD-ROM-quality version and a full TV resolution video.

The subjects included are:

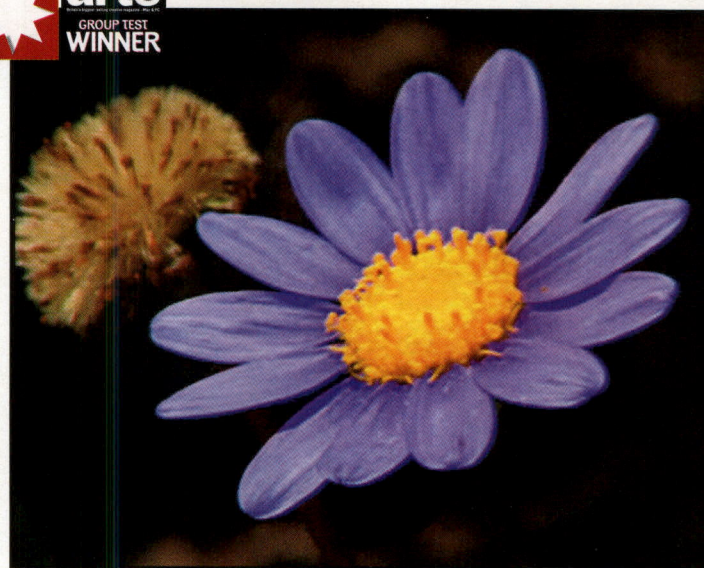
Snow scenes — scenic snowy landscapes, snow falling, as well as skiing scenes.

City life — shots of (mostly US) cities. There are fly-bys, street-level scenes, traffic jams and landmarks.

Aerial shots — a multitude of impressive helicopter shots featuring a range of landscapes from the Grand Canyon to snow-capped mountains, and rugged coastlines.

Spring scenes — a colourful collection of flowers, bright skies, waterfalls, and picturesque landscapes.

Industry — shots of things being built, robot welding arms in action,



mechanical processes, but also scenes of factory exteriors and chimneys.

All in all, this is a wide ranging collection with not much to link the different subjects included. However, it represents exceptional value for money, and includes the best browsing system we've seen in any of the collections.

Verdict



Deadlines & Decisions

Price

\$499

Company

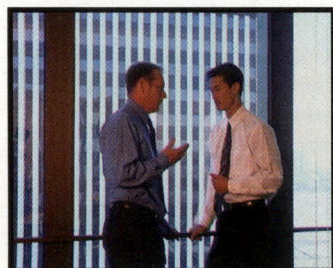
Rocketclips

Website

www.rocketclips.com

Telephone

Buy online



Another business/corporate collection, the characters in Deadlines and Decisions seem generally to be having a harder time at work than those in the *Business on the Go* library. These 18 DV-quality shots feature people sweating to get things done, running for meetings, and pondering over their next decision. There's a lot of drama in these images, but little reward.

It's quite a specific theme, but since most corporate videos are about convincing somebody to make some kind of a decision, they're likely to get a lot of use.

The shots are generally of good quality, and there are a lot of close-ups to define the characters involved. However, there aren't that many of them, and the set doesn't feature a browser or a reference sheet, so you'll have to load the clips individually to see what they look like.

Verdict



Tunnel Vision

Price

\$249 (£173)

Company

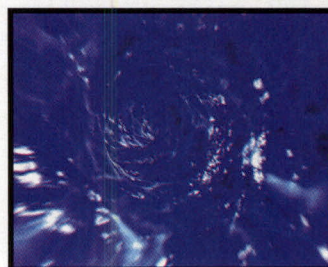
a Luna Blue

Website

www.alunablue.com

Telephone

Buy online



An excellent choice if you're remaking *Doctor Who*. This CD features 34 journeys through psychedelic tunnels of light and fire. It's the kind of shot that you'd expect to see as the backdrop for a logo, or as part of a transition from one scene to another.

There's a wide range of fascinating textures on the tunnel walls — the liquid ones are especially good. And because each journey is through the same 3D tunnel model, you can very easily combine the effects, or cut between them without interrupting the flow of the motion.

This is not the most varied archive in the world and, if you're a good 3D modeller, you can easily create similar effects yourself. However, Tunnel Vision does what it does extremely well and, for a quick and easy way to hypnotise your audience, you can't really argue with it.

Verdict



Nightmoves

Price

£704 (quote *Computer Arts Special* to receive a £50 discount)

Company

Digital Vision

Website

www.digitalvisiononline.co.uk

Telephone

020 7378 5555

Nightmoves is a 30-clip collection designed to give the feeling of an urban night out. The collection includes clubbing shots, bars, street scenes and restaurant shots.

These are highly processed shots that are both visually strong and striking. They also contain a lot of blurs, glows, speed changes and colour adjustment. This makes the scenes quite stylised and, at times, almost abstract. Essentially, they are fast-paced montages with plenty of action.

Nightmoves clips would certainly complement a trendy production, but their look is very defined and individual, so it won't blend into the background. Some clips are looped for constant playing.



The browser provided is an extremely welcome addition. It's very easy to select the clip you want, and you can instantly play back preview versions of any shot.

Verdict



The Visual Effects CD

Price

\$199 (£139)

Company

Visual Concept Entertainment

Website

www.vce.com

Telephone

Buy online

This is an effects disc, pure and simple. Explosions and fire effects are featured aplenty among the 37 clips, but they're not alone. Also included are some very useful, and very imaginative, easy-to-matte clips.

Some of the highlights of this collection include: flying birds, which can be easily placed onto a landscape to bring them to life; a waterfall; a bullet hole appearing in glass; and a real nuclear explosion. There are also

dust, snow and rain loops so that you can alter the weather conditions on any of your shots.

All clips within this collection are of high quality (being mastered from film rather than video), and they're provided as image sequences rather than video files. By doing this, it has the advantage that you can use them at whatever frame rate you desire without having to worry about conversion. There are also preview movies that enable you to browse the collection.



Verdict



Buying online

While some video editors might want to keep a library of clips ready for use in any production, others might prefer to just buy one or two clips when they need them for a specific project. Most of the footage libraries now offer their clips for individual purchase over the Net.

Clips can cost between £30 and £200 each, and you can usually get hold of them after a simple sign-up process. Of course, for most libraries, this is the preferred way to

work. You get instant access to whatever you want from the library, and the company benefits from not having to pay for burning CDs, packaging, or posting your clips to you.

Selecting your video is simple, with thumbnails and low-res versions usually available so you can browse to find exactly the right clip that you are looking for. You can then place an order by credit card and either download your chosen clip, or have it sent to you on disk. Of course, clips tend to be high

quality, which makes them huge. So, be prepared for downloads to be up to four or five hundred megabytes.

Most of the libraries are prepared to be flexible. If you want to pick and mix a selection of clips, then you can generally negotiate on price, and get them sent to you in whatever format you desire.

There are many other sites where you can buy stock images, other than those already mentioned. Here are some of the best ones:

[w] www.worldclips-stock-footage.com — stills and video from many world locations.

[w] www.livestockfilm.com — from business images to modern city footage.

[w] www.footage.net — news footage network.

[w] www.wywhstock.com — specialises in wildlife and travel film and video.

[w] www.bbcfootage.com — online guide to the BBC's Library sales.

[w] www.footageworld.com — search dozens of other footage sites using keywords.



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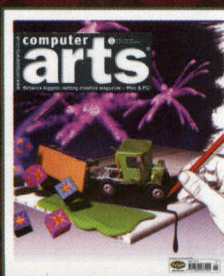
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After Effects 5.5

Revolutionary After Effects 5.5 Enhancing Digital Video

Price

£36.99

Author

George J. Kingsnorth et al

Publisher

Friends of ED

ISBN

1903450780

This addition to the *Revolutionary* series needs to be evaluated carefully as it suffers from a lack of focus.

This is essentially a book of three parts, but three parts that fail to integrate into a structured learning environment that enables you to put *After Effects* to work in your project.

Beginning with the ubiquitous walkthrough of key tools and features, the book then moves on to organising production logistics – something that should surely be at the beginning.

Case studies take up the final third of this book, but fail to build adequately on the work that you have already done. The case studies are comprehensive, but they are in need of more detail and a clear relationship established between the goals of the case study and which skills, tools and techniques you will bring into play as you work through each of them.

A great deal is also made of other third-party programs, like 3D animation and 2D paint programs, that the reader may either not have, or



cannot comfortably operate. This book would suit intermediate and advanced users. But beginners will feel that they need to acquire background knowledge before tackling this book. Advanced users, may find that the book dumbs down *After Effects* and offers little on the new features that version 5.5 has.

Verdict



Motion graphics

Creating Motion Graphics with After Effects

Price

£36.99

Author

Trish & Chris Meyer

Publisher

CMP Books

ISBN

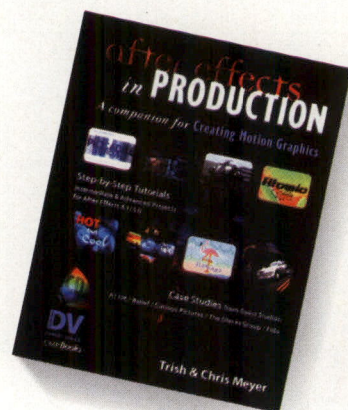
1578200776

Aimed at the intermediate user, this book takes the skills that were taught in its companion volume, *Creating Motion Graphics with After Effects*. The use of intensive hands-on tutorials and the dissection of case studies, from renowned studios such as ATTIK, Belief and Fido, provide an intensive course that will push your *After Effects* skills to new heights of accomplishment.

If you like the *Wow!* series of books or Lynda Weinman's collection of Web design books then you'll also like this. Each page is packed with instruction, screenshots and supporting graphics all presented in superb full colour.

The tutorials are rather advanced, so tackle the authors' first book beforehand. The tutorials are still useful to those using version 4, as the authors go out of their way to keep each tutorial relevant to all versions.

Verdict



Digital video

An Introduction to Digital Video 2nd Edition

Price

£29.99

Author

John Watkinson

Publisher

Focal Press

ISBN

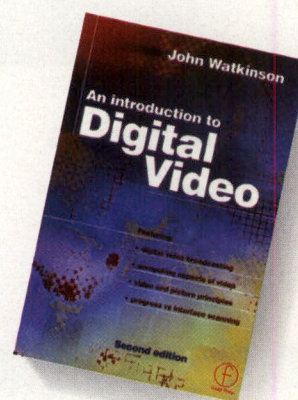
0240516370

This book offers a distillation of the comprehensive information that is contained in the author's other book, *The Art of Digital Video*.

Equations are replaced with clear and concise diagrams, supported with a plain English explanation of each feature of DV. Over nine chapters, you will move from an introduction to the entire digital video subject, through video compression and MPEG, to how digital video is communicated via TV, broadband networks and FireWire.

At first glance this book is daunting, but a closer inspection reveals that the information here is easily digested and, above all, relates to the real-world experiences you may have already had as digital film maker. This is a technical book, but if you want to get under the hood and see what makes digital video tick, then this is the book for you.

Verdict



The art of film making

Final Cut Pro 3 and the Art of Filmmaking

Price
£45
Author
Jason Cranford Teague & David Teague
Publisher
Sybox
ISBN
0782140270

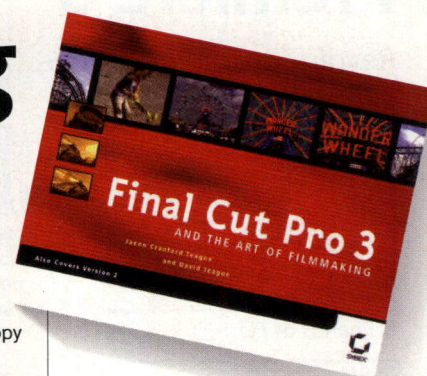
Presented in landscape format, this is a complete introduction to the art of non-linear editing that takes you from initial set up of the hardware and software you will be using, to the transfer of your completed film to the media it will be distributed on.

Divided into five self-contained chapters, you move from hardware set-up to advanced techniques such as working with composite models and alpha channel properties. Along the way, cleanly laid out tutorials teach essential technique, each step is accompanied by a screenshot. All of *Final Cut Pro 3*'s latest features are covered, such as Quick View, Voice

Over and the enhancements to Media Manager.

This manual is not a complete editing course. Simply installing a copy of *Photoshop* won't make you a designer, and, in the same way just learning *Final Cut Pro* technique won't make you a good editor. What this book will give to even the absolute beginner, though, is the confidence to use what can be at first sight, highly complex tools as part of their own video editing suite.

Overall, if you are looking for one book that will give you a complete overview of each of *Final Cut Pro 3*'s tools, then this is certainly it. Complete with sample footage on an



accompanying DVD, tips and wonderful FAQs in each chapter, this book will not only show you the *Final Cut Pro* ropes, but also serve as an essential reference tool. Each time you open *Final Cut Pro*, make sure this book is close to hand.

Verdict



Video and sound

Rich Media: Video and Sound in Flash (Studio Lab)

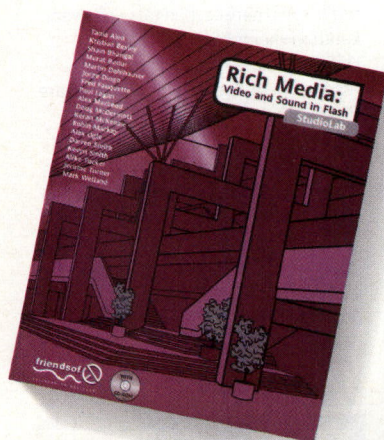
Price
£47.99
Author
Tania Aleo et al
Publisher
Friends of ED
ISBN
1903450640

In the *Designer to Designer* series, this manual specialises in teaching the best way to incorporate full-motion video and sound into your *Flash* designs. At its heart, this book will show you how to design media rich Websites that make use of video and sound, all within the confines of today's limited bandwidth.

The book begins with *After Effects* then moves on to QuickTime, RealVideo, *Premiere* and *Final Cut Pro*. The second half deals with sound, with detailed chapters on optimisation, MIDI and *Cubase*. Tutorials are detailed and thorough, always relating each element to the HTML that will display it in a browser.

This series is aimed at the designer who has very little time for detailed explanation or discussion, as each tutorial is easy to read and follow. If you have perfected your *Flash* and HTML skills and want to bring rich media to your designs, this book is for you.

Verdict



Digital film making

Revolutionary Final Cut Pro 2 Digital Film Making

Price
£39.99
Author
Luther Blissett et al
Publisher
Friends of Ed
ISBN
1903450748

Not simply a manual for the *Final Cut Pro 2* user, this book offers hard-won inside knowledge from some of the best practicing film makers. You will not only learn how to make the most of *Final Cut*, but also how it can make you a better film maker.

The first five chapters look closely at the art of film making, covering each of the essential ingredients that culminate in the first day of shooting. Subjects include film genealogy and how to plan your film from pre- to post-production. The remaining chapters then cover the use of *FCP* in each stage of the shoot and are supported with an on-going case study that translates theory into practice.

All budding film makers would benefit from this title; it not only provides solid hands-on tutorials, but also illustrates each key step with a real-world example. Supporting chapters on special effects, scene transitions and distribution round out this *FCP* film maker's masterclass.

Verdict



Premiere 6

Revolutionary Premiere 6

Price
£28.99
Author
Christian Darkin et al
Publisher
Friends of ED
ISBN
1903450497



Similar in layout and design to *Revolutionary Final Cut Pro*, this course begins with an overview of how *Premiere 6* can be incorporated into your workflow. The book then progresses onto more practical chapters that walk you through each of the program's key features and techniques.

Although there is not a CD-ROM, all example files can be downloaded from the book's accompanying Website. The book also suffers from a lack of case studies that would have greatly helped to align theory with practice.

If you're looking for a manual that concisely explains each of *Premiere's* features then this book provides well. However, visual quickstart guides do this much better. If this book had been constructed with similar care to *Revolutionary Final Cut Pro* then it would have been far more useful to the *Premiere 6* user.

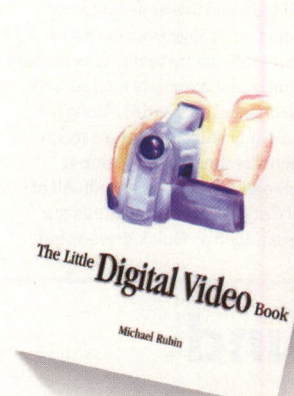
Verdict



DV techniques

The Little Digital Video Book

Price
£14.99
Author
Michael Rubin
Publisher
Peachpit Press
ISBN
0201758482



Perfect for the armchair director, *The Little Digital Video Book* offers the beginner a detailed but fun set of practical tutorials to introduce Rubin's rules of shooting. You won't learn how to create your own mini Hollywood epic, but you will be able to create video sketches that are professional and fun to produce.

A complete course is offered from how to choose your first DV camera, to how to transfer your footage to your PC. The author almost exclusively covers Apple's iMac and its *iMovie* software, but it's the technique taught that makes this book stand out.

Don't be fooled by the slim stature. Each page is crammed with advice from a man who began his career designing digital tools for George Lucas. Advocating the simple approach to film making, this book will show you how to shoot and edit better films.

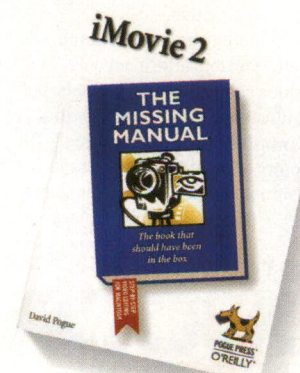
Verdict



iMac film making

iMovie 2 The Missing Manual

Price
£13.95
Author
David Pogue
Publisher
O'Reilly
ISBN
0596001045



If you have an iMac and a DV camera then you have all the tools to start making your own movies. Billed as *iMovie's* missing manual, this book presents you with a walkthrough of all *iMovie's* features, as well as ancillary information on buying a DV camera and developing your editing skills.

Much of the book looks closely at each feature of *iMovie*, and offers sound advice on placing your movies on the Web. You also get an insight into more advanced editing suites, like *Final Cut Pro* and *EditDV*, as well as all the supporting technical information needed to avoid any frustrating pitfalls.

Ultimately, this is a comprehensive course in *iMovie's* operation as well as a plethora of supporting advice and information, making this an essential guide to film making with your iMac.

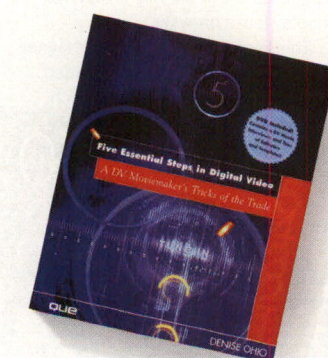
Verdict



Essential DV

Five Essential Steps in Digital Video

Price
£32.99
Author
Denise Ohio
Publisher
Que
ISBN
0789726157



If your film making ambitions are more than short films to show to your family and friends, this book will show you the mechanics of professional film making in five comprehensive steps.

Ohio's book is intensely practical. The appendices contain ready-drawn forms for expenses, budgets and even audition sheets for your actors! However, the book's US bias is its Achilles' heel. The lists of resources are mostly US-based, so they're of little use in the UK.

You get a practical overview of all the film making process with DV at its centre. As the author points out, "DV isn't just a format — it's a new way of making movies." Read this book along with *The Guerilla Film Makers Handbook* (0826447139) for a much needed UK balance.

Verdict



computer arts special BACK ISSUES

All back issues cost £6. Postage free in UK. Add £1 per issue for European orders. Add £3 per issue for the rest of the world.



Computer Arts Special Effects – COSB0027

Use your video, 3D and compositing skills to create movie-style SFX. Tutorials include: creating dragon fire in *3ds max*; ultra-real planetary explosions; *Hobbits!* The 'little people' effect; slo-mo, old film effects, mattes, fur and more. We take a look at the hot new desktop tools taking the donkey work out of vfx, and the story behind *Walking with Beasts*. Plus, a guide to SFX software, profiles and regulars.
CD Free copy of *AlamDV1* worth £45, demos of *LightWave 7*, *Cinema 4D XL7* and *AE 5*.



Computer Arts Special Complete Web Design – COSB0028

Design an entire Website in our first 'concept' issue involving some of the UK's finest new media talent, including Fictitious Egg, Freakish Kid, Sprite Interactive, Bigimpact TV and *Computer Arts*' leading writers. You'll find tutorials and theoretical features on every aspect of site design from Web games, navigation, databases, graphics, layout, audio, 3D, streaming video and animation.
CD *AXELedge 15*, eight essential demos including *Dreamweaver 4*, *Flash 5* and *After Effects 5*.



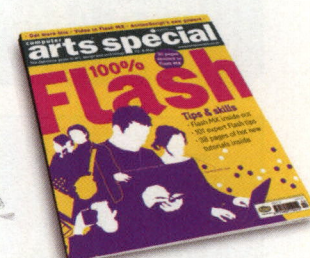
Computer Arts Special Master Illustration – COSB0029

A complete guide for digital artists, including 101 tips for all professional illustrators and creative insight from this issue's cover creators, The Designers Republic. You'll also find extensive features covering all aspects of illustration, including vector drawing. Plus, 45 pages of in-depth tutorials on *FreeHand 10*, *CorelDRAW 10*, *Illustrator*, *Canvas 6* and much more.
CD A full version of *Canvas 6*, plus demos including *Illustrator 9*, *FreeHand 10* and *Photoshop 6*.



Computer Arts Special 100% Photoshop – COSB0030

A whole issue dedicated to Adobe *Photoshop*. Included is an eight-page in-depth *PS7* review where we test every new feature of the application. If you use *Photoshop* for online images, then you'll need our 50 Web graphics tips. Learn the art of Scanography with this month's cover designer, David Newton. Plus, 37 pages of tutorials covering *PluginMagic*, 3D textures, animation and much more.
CD A full version of *PluginMagic vol 1*, 10 royalty-free images worth £1990, 1250 *Photoshop* filters.



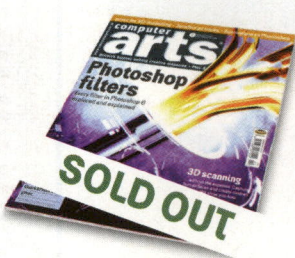
Computer Arts Special 100% Flash – COSB0031

This issue covers all things *Flash*, including a massive 30 pages dedicated to *Flash MX*. Also in this issue: 38 pages of hot new tutorials, covering video, screensaver creation and handheld game design; 101 *Flash* tips; the new powers of Apple's coding language, *ActionScript*; an in-depth seven-page review of *Flash MX*; and a free 36-page *Flash* sampler book from *Friends of ED*.
CD *Flash MX* demo (dual), *Flash 5* (dual), plus £300 of extras from *Graphicscene* and *Web Foundry*.



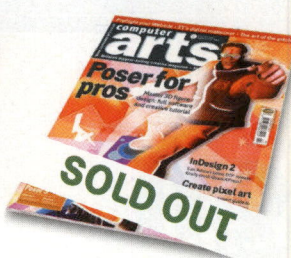
Issue 65 – Code CA065

Film-making for the Web
CD *Deep Paint 3D 1.61* (PC), *Swift 3D 2* (PC), *Flash 5* (dual).



Issue 66 – Code CA066

Photoshop filters
CD *QuarkXPress 5* (dual), *gmax* (PC), *PhotoStudio 4.0* (dual).



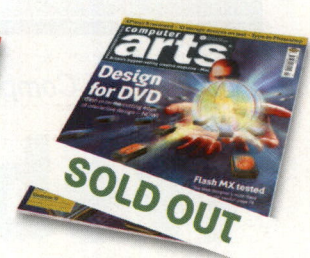
Issue 67 – Code CA067

Poser for Pros
CD Full *Poser 3* (dual), *EditStudio 3.0* (PC), *PhotoStudio X* (Mac).



Issue 68 – Code CA068

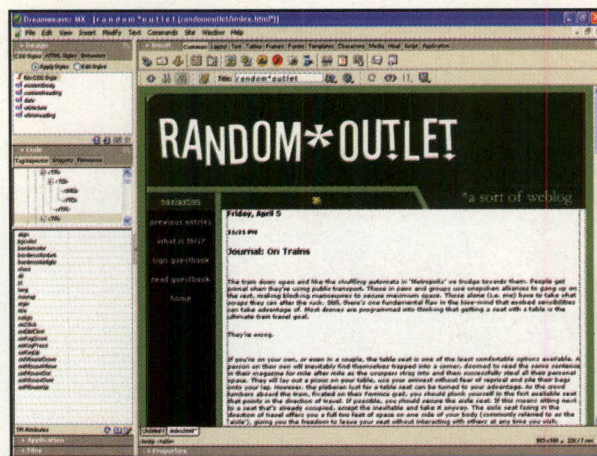
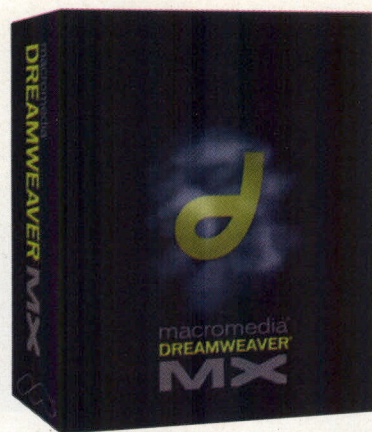
Painter 7 – with demo
CD Full *Canvas 6* (dual), *Font FX Express 2.5* (PC).



Issue 69 – Code CA069

Design for DVD
CD *Illustrator 10* (dual), *UltraDev 4* demo (dual), *ReelDVD 2.5* (PC).

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or take out a subscription – see page 93



DREAMWEAVER MX



PHOTOSHOP 7, FLASH MX AND FIREWORKS MX

computer arts special NEXT ISSUE 33

Contents subject to change

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Web design

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- Extended review of *Dreamweaver MX*
- *Photoshop 7* for Web design
- Building sites that sell: a guide
- Set up a Web server
- Lip synching characters in *Flash MX*
- How to create Flash Components
- *Dreamweaver MX* beginners' tutorial
- Lateral and Fibre's best Web work profiled

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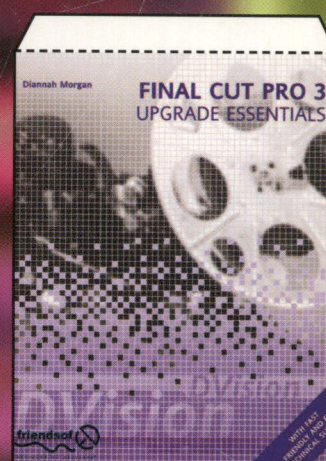
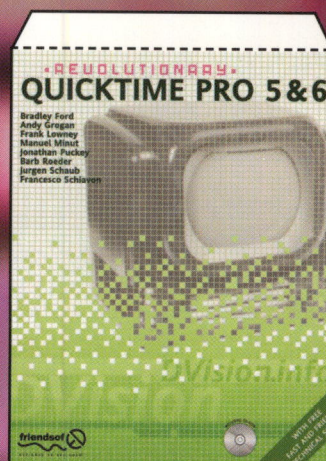
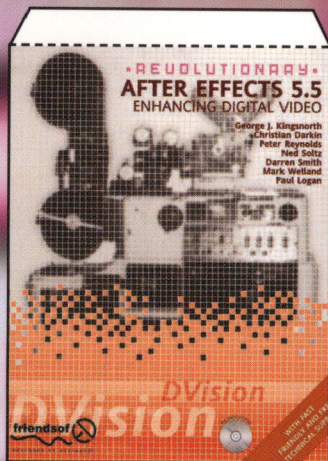
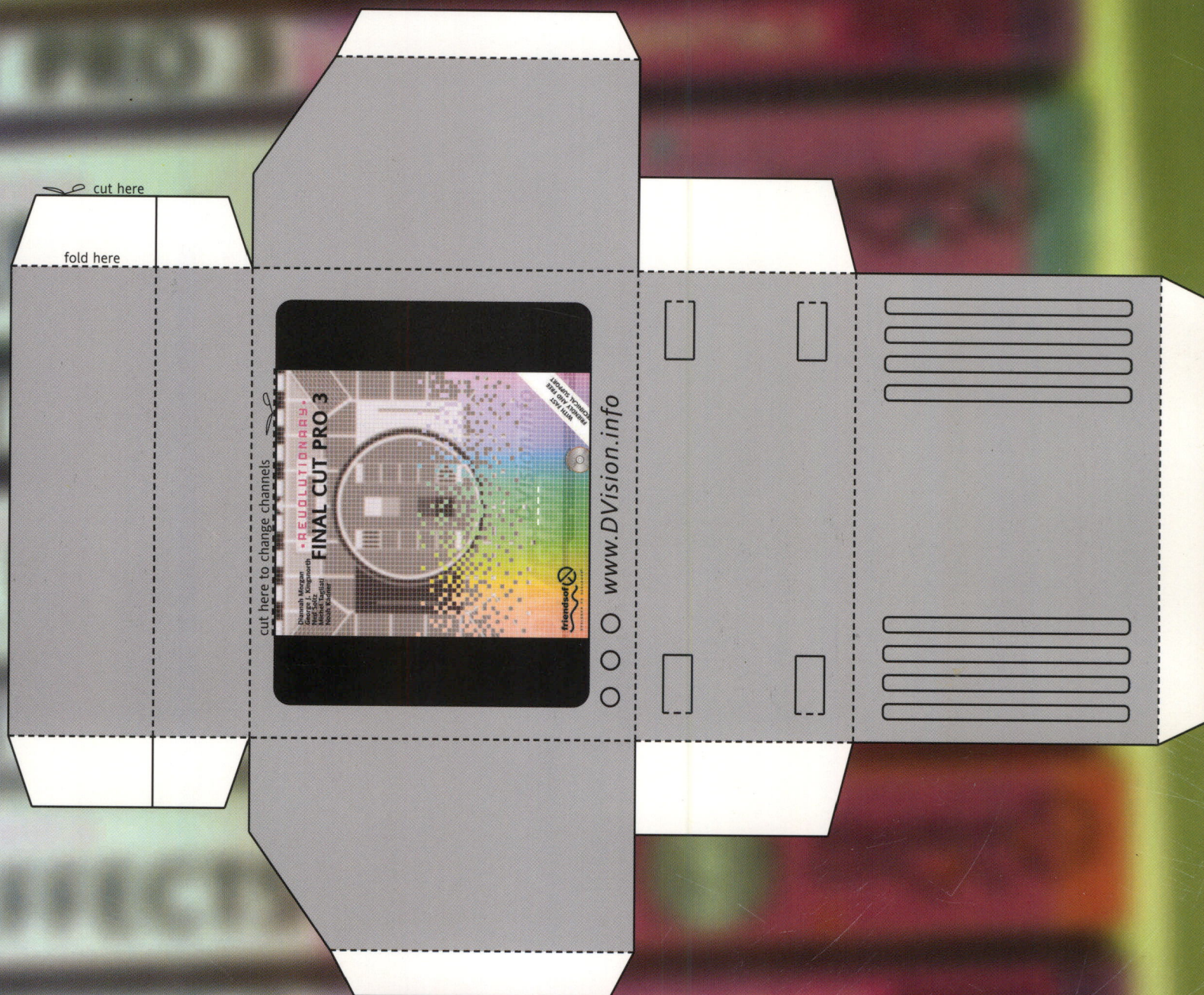
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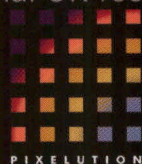
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